

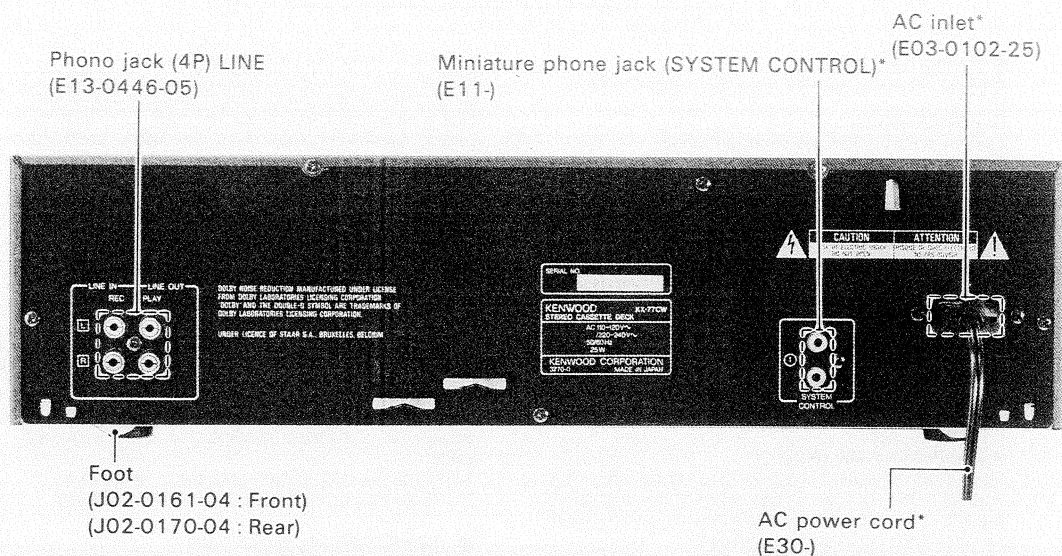
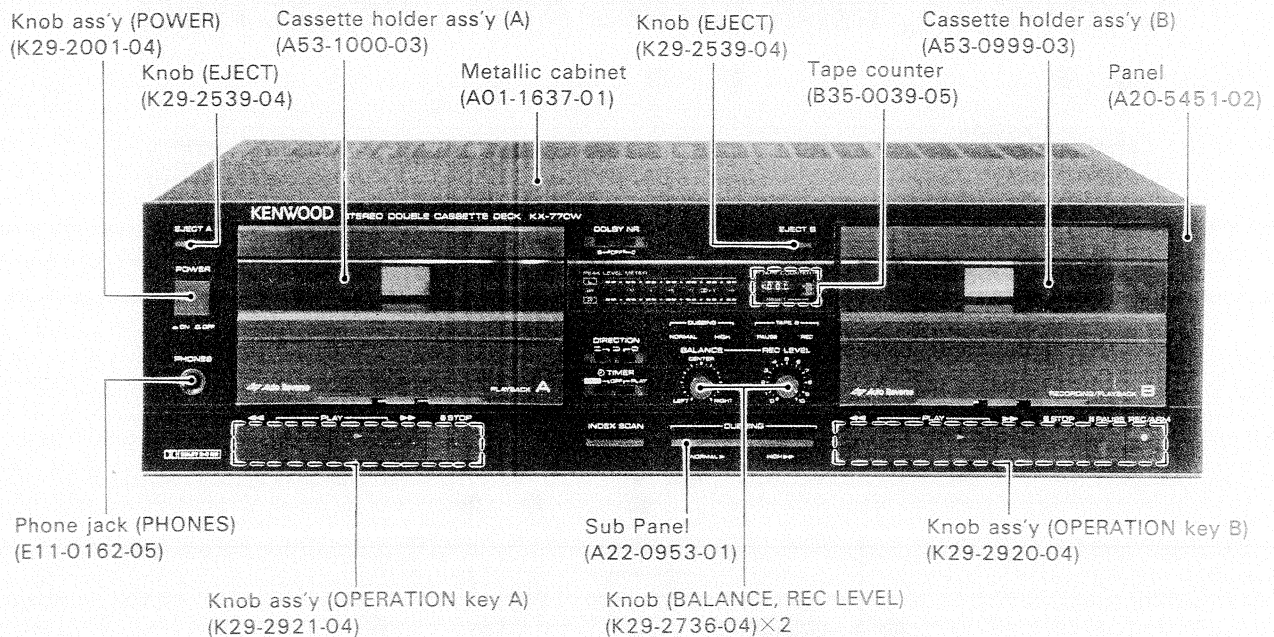
STEREO DOUBLE CASSETTE DECK

# KX-77CW

## SERVICE MANUAL

# KENWOOD

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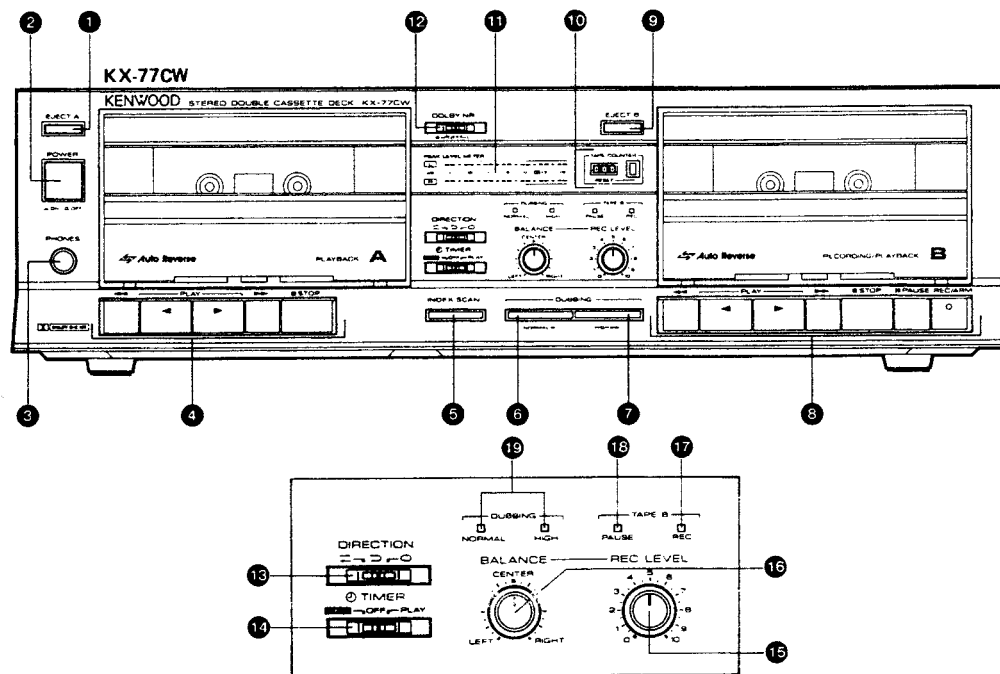


\* Refer to parts list on page 41.

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## CONTROLS, INDICATORS AND CONNECTORS



**1 A deck EJECT button**  
Pressing this button opens the A deck cassette holder.

**2 POWER switch**  
Use this switch to turn the power on and off.

**3 PHONES JACK**  
Plug stereo headphones into this jack to monitor recordings or tape playback.

### 4 A, B deck operation keys

#### • Rewind key (◀◀)

Press to rewind tape. Tape will move from the right reel to the left reel at high speed. When this key is pressed during playback, tunes are skipped in the reverse direction each time the key is pressed. When this key is pressed together with the forward play key (▶▶), the tape is rewound and the tape is played back from the first tune of side A.

#### • Fast forward key (▶▶)

Press to rapidly advance the tape. Tape will move from the left reel to the right reel at high speed. When this key is pressed during playback, tunes are skipped in the forward direction each time the key is pressed.

When this key is pressed together with the reverse play key (◀◀), the tape is rewound and the tape is played back from the first tune of side B.

#### • Reverse play key (◀◀)/indicator

Press to play tape in the reverse direction (side B). When this key is pressed more than twice, the current tune is played back repeatedly (16 times). To release the current tune being played back repeatedly, press the stop key (■).

When the reverse play key (◀◀) is pressed with tapes loaded in both A and B decks, the unit enters relay playback mode.

#### • Forward play key (▶▶)/indicator

Press to play the tape in the forward direction (side A). When this key is pressed more than twice, the current tune is played back repeatedly (16 times). To release the current tune being played back repeatedly, press the stop key (■).

When the forward play key (▶▶) is pressed with tapes loaded in both decks, the unit enters relay playback mode.

#### • Stop key (■)

Press to stop tape travel. This will also release the previous mode of operation.

#### • REC/ARM key (only B deck)

Press this key to start recording. The REC indicator lights. The recording mode can only be entered from the stop mode.

#### • Pause key (||) (only B deck)

When this key is pressed during playback, recording, dubbing or high-speed dubbing, the unit temporarily stops.

To release playback pause mode, press the play key. To release rec pause mode, press the REC/ARM key.

#### • INDEX SCAN key (only A deck)

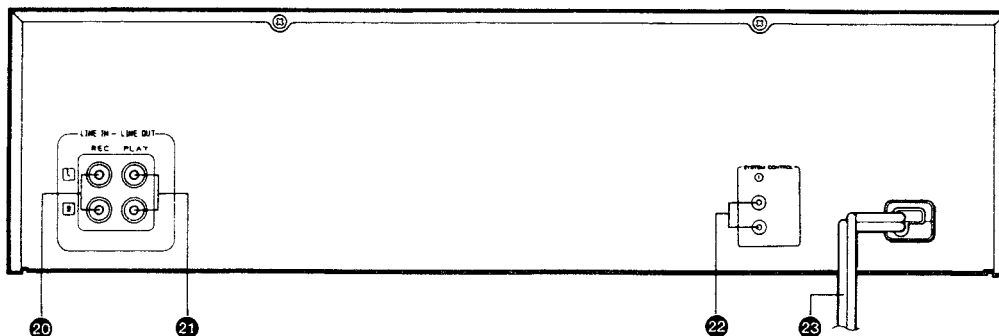
This key is for A deck only.

Press this key to select the desired turn. When this key is pressed, the beginning of each tune is played back for about 10 seconds.

#### • Normal-speed dubbing key (NORMAL ▶▶)

When this key is pressed, the normal dubbing indicator lights and dubbing from Deck A to Deck B starts.

## CONTROLS, INDICATORS AND CONNECTORS



### ⑦ High-speed dubbing key (HIGH ►►)

When this key is pressed, the high-speed dubbing indicator lights and high-speed dubbing from Deck A to Deck B starts.

### ⑧ See No. ④ on page 2.

### ⑨ B deck EJECT button

Pressing this button opens the B deck cassette holder.

### ● TAPE COUNTER and reset button

The TAPE COUNTER provides a means of locating passages on the tape. When starting a recording, set the counter 000 by depressing the reset button.

### ● PRAK LEVEL METER

Indicate the peak values of the input levels for recording or the output levels for playback.

### ● DOLBY NR switch

To record or play back a tape with Dolby NR, set the switch to B or C.

### ● DIRECTION switch

**Normal mode (◄►)** — In this position, one side playback or recording is possible. When the end of tape is reached, the operation mode is released and the tape stops.

When the tape reaches its end in playback mode, the tape loaded on the other deck is played back.

**Reverse mode (◄◄►►)** — In this position, both sides can be played back or recorded. In this mode, recording and playback do not automatically change from side B to side A.

**Endless mode (◄◄◄►►►►)** — In this position, tape is played back repeatedly. DPSS, index scan are carried out twice (2 sides).

In endless mode (◄◄◄►►►►), relay playback is not possible.

### ● TIMER stand-by switch

This switch is used along with an audio timer when an unattended recording or timer-playback is performed. Set this switch to the REC position for unattended recording, to the PLAY position for timer-playback and to the OFF position when the timer is not used. For timer operation, B deck has the priority.

### ● REC LEVEL CONTROL knob

Adjust the right and left recording levels, with these knobs.

### ● Balance adjust knob for L/R recording levels

This adjusts the balance of recording levels so that these of L/R channels are equal.

### ● REC indicator

This indicator lights during recording or dubbing.

### ● PAUSE indicator

This indicator lights when the pause key (⏸) is pressed.

### ● Dubbing indicators

**NORMAL** — Lights when the normal speed dubbing key is pressed.

**HIGH** — Lights when the high speed dubbing key is pressed.

### ● REC/LINE IN jacks

Connect to the Tape Rec jacks of your amplifier using the audio cables (supplied).

### ● PLAY/LINE OUT jacks

Connect to the Tape Play jacks of your amplifier using the audio cables (supplied).

### ⑪ Jack ① (For system control)

Connect to the system control of audio components. (Except for some areas.)

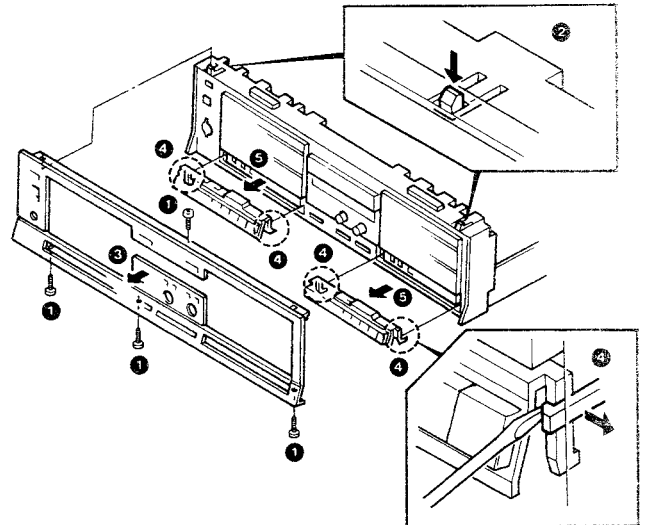
### ● Power cord

Plug in to a convenient AC outlet.

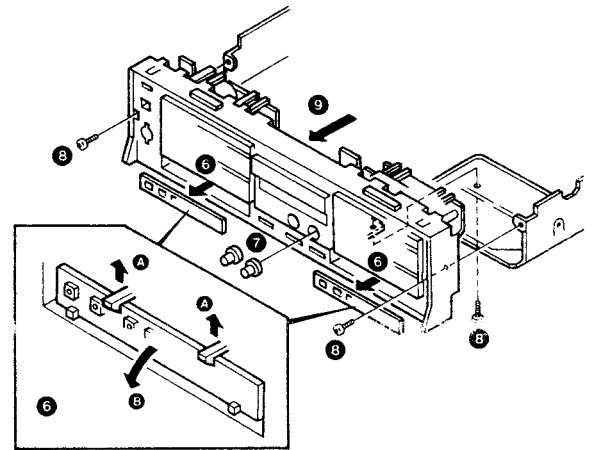
## DISASSEMBLY FOR REPAIR

Operations in steps 2. and 3. are not required when only the mechanisms are to be removed.

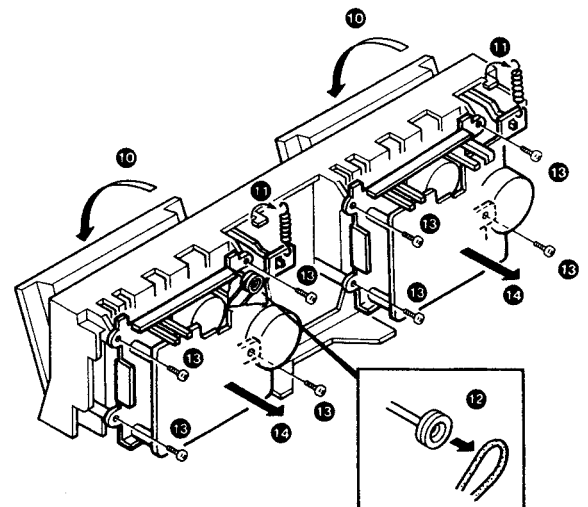
1. Remove the 4 screws (1) fixing the front panel, disengage the 2 claws (2) on the sub-panel, and take out the front panel (3).
2. Disengage the 4 claws (4) retaining the switches and knobs, and pull out the knobs (5).



3. Disengage the claws retaining the Switch unit (A), and take out the Switch unit in the direction of the arrow (B) (6).
4. Remove the 2 volume controls (7) and the 3 screws (8) connecting the sub-panel and chassis, and take out the sub-panel in the direction of the arrow (9).



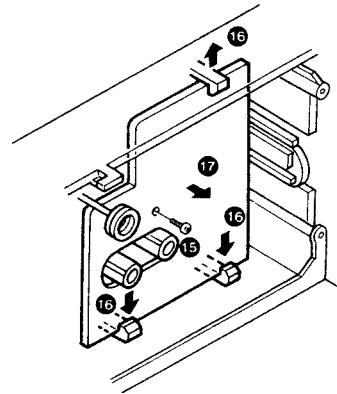
5. Press the Eject buttons to open the cassette holders (10).
6. Disengage the respective springs (11) from the A and B mechanisms.
7. Remove the rubber belts of the tape counters (12).
8. Remove the 8 screws (13) fixing the mechanisms, and take them out in the direction of the arrow (14).





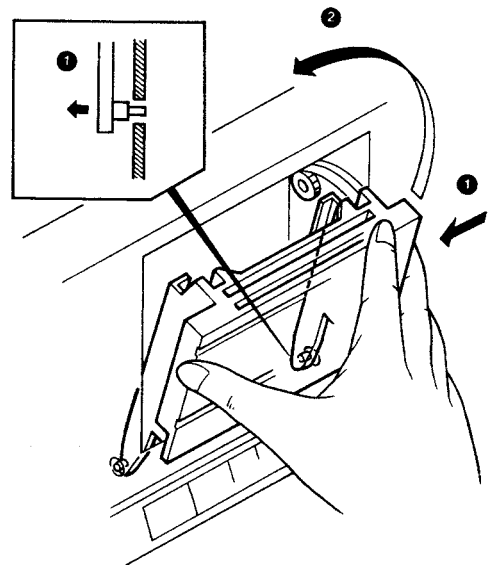
## DISASSEMBLY FOR REPAIR

9. Remove 1 screw (15) and disengage 3 claws (16) which fix, together with the screw, the Switch unit on the center of the sub-panel, and take out the Switch unit in the direction of the arrow (17).

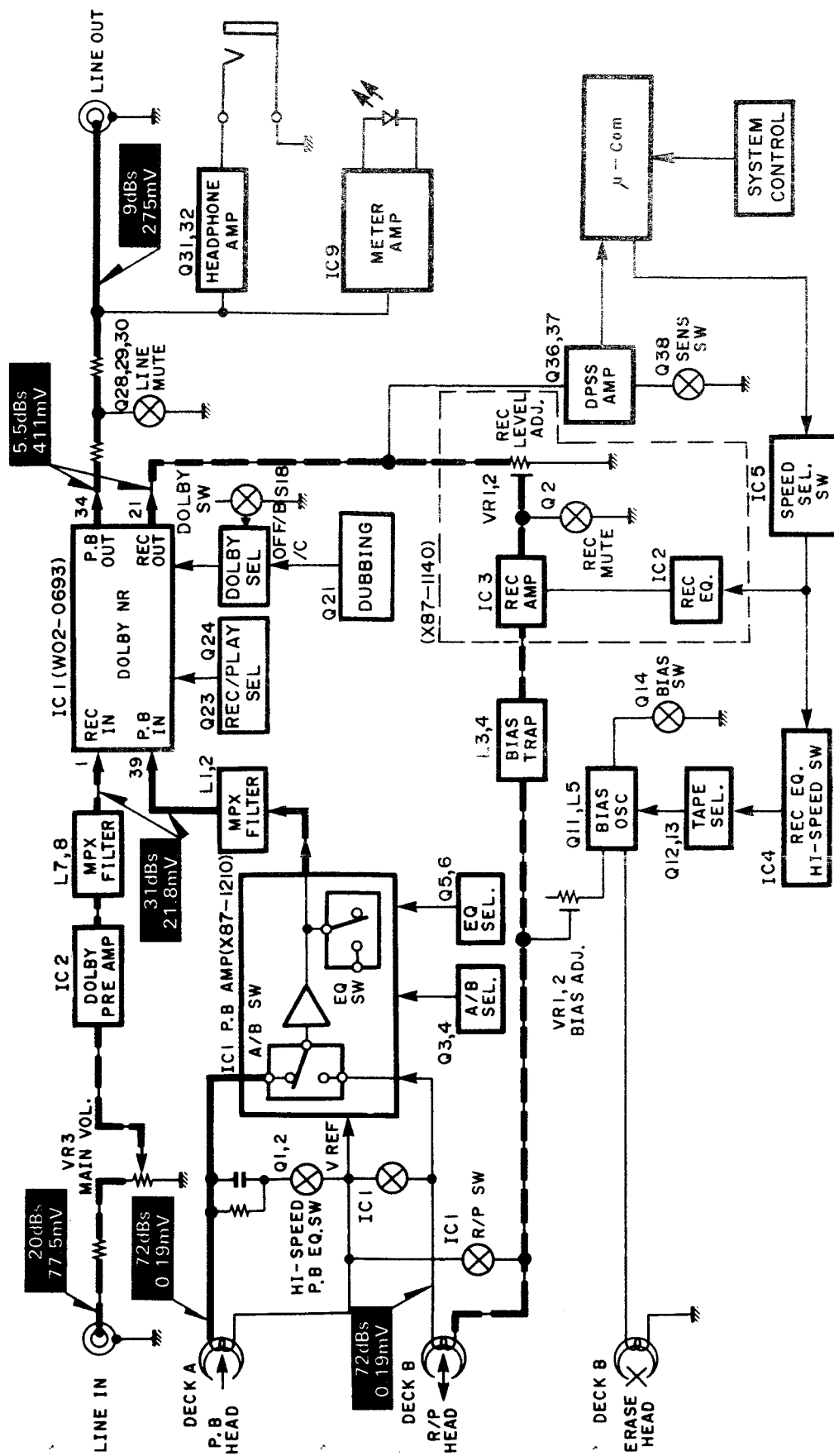


### REMOVING THE CASSETTE HOLDER

After ejecting each cassette holder out, press the cassette holder in the direction of the arrow (1) as shown in the illustration until the projection on one side of the holder is disengaged. Then, take out the cassette holder in the direction of the arrow (2).



## BLOCK & LEVEL DIAGRAM



# CIRCUIT DESCRIPTION

## DESCRIPTION OF COMPONENTS

Record/Playback Unit (X28-1890-10,2-71)

Components	Application/Functions	Operation/Conditions/Interchangeability
Q1	P.B.EQ Correction at high speed (Deck A Lch)	OFF during high speed. ON with other speed.
Q2	P.B.EQ Correction at high speed (Deck A Rch)	OFF during high speed. ON with other speed.
Q3	A/B switch	ON during A deck playback or dubbing. OFF in other modes.
Q4	A/B switch	OFF during A deck playback or dubbing. ON in other modes.
Q5	A/B selection of P.B.EQ, 70/120 $\mu$ s selection	ON during B deck playback with mechanism B. Set for 70 $\mu$ s. OFF in other cases.
Q6	A/B selection of P.B.EQ, 70/120 $\mu$ s selection	ON during A deck P.B with mechanism A. Set for 70 $\mu$ s. OFF in other cases.
Q7	P.B.EQ mute (Lch)	ON during REC mode.
Q8	P.B.EQ mute (Rch)	ON during REC mode.
Q11	Bias OSC	
Q12	Bias current selection	ON with metal tape.
Q13	Bias current selection	ON with CrO <sub>2</sub> tape.
Q14	Bias ON/OFF switch	ON during REC. OFF in other modes.
Q21	DOLBY ON/OFF switch	OFF during dubbing. ON in other modes.
Q23	DOLBY R/P switch	OFF during playback. ON in other modes.
Q24	DOLBY R/P switch	ON during playback. OFF in other modes.
Q25	Power supply for DOLBY	ON during DOLBY playback mode.
Q28	Line mute driver	OFF during REC P.B and REC-pause.
Q29	Line mute (Lch)	OFF during playback, recording and REC-pause.
Q30	Line mute (Rch)	OFF during playback, recording and REC-pause.
Q31	Head phone amp (Lch)	
Q32	Head phone amp (Rch)	
Q35	DPSS sensitivity switch.	OFF during REC, P.B and REC-pause.
Q36, 37	DPSS amp	
Q38	DPSS switch	ON when program is present. OFF when program is absent.
Q39	DPSS switch driver	OFF during REC. PB and REC-pause.
Q40	REC mute driver	OFF during REC. ON in other modes.
Q41, 42	Power supply	+12V
Q43	Power supply	+5V
Q44	Reset	
Q45	LED driver	

## CIRCUIT DESCRIPTION

Components	Application/Functions	Operation/Conditions/Interchangeability																		
Q51	Direction switch A deck.	ON with reverse direction. OFF with other direction.																		
Q52	Direction switch B deck.	ON with reverse direction. OFF with other direction.																		
Q53	LED driver A deck.																			
Q54	LED driver B deck.																			
IC1 (UPC1330HA)	Head selection	<table><tr><th>Condition of pin 4 \ Pin No.</th><th>1 R+</th><th>3 R-</th><th>7 L-</th><th>9 L+</th><th>Mode</th></tr><tr><td>H</td><td>GND</td><td>—</td><td>—</td><td>GND</td><td>REC</td></tr><tr><td>L</td><td>—</td><td>GND</td><td>GND</td><td>—</td><td>Others</td></tr></table>	Condition of pin 4 \ Pin No.	1 R+	3 R-	7 L-	9 L+	Mode	H	GND	—	—	GND	REC	L	—	GND	GND	—	Others
Condition of pin 4 \ Pin No.	1 R+	3 R-	7 L-	9 L+	Mode															
H	GND	—	—	GND	REC															
L	—	GND	GND	—	Others															
IC2 (NJM4560D-A)	Buffer amp																			
IC4 (TD62554S)	Tape selection for REC EQ.																			
IC5 (TD62554S)	Speed switch																			
IC6 (UPC7818HF)	Power supply	+ 18																		
IC7 (UPD7538AC)	Microprocessor																			
IC8 (TD62554S)	LED driver																			
IC9 (AN6888)	LED driver for level meter																			
IC10 (M51951ASL)	Reset																			

### Record/Playback Unit (X87-1140-02)

Components	Application/Functions	Operation/Conditions/Interchangeability
Q1,2	Signal muting	When pin 5 of CN2 becomes "H", Q1 and Q2 turn ON so that muting is applied to the input signals from pin 1 of CN1 and pin 9 of CN2.
IC1,2 (BA6251F)	Equalizer selection	Those pins 1-7 of IC1 (IC2) to which pins 6 and 7 of CN1 and pins 1-4 of CN2 are connected are controlled to turn ON/OFF each equalizer device. When each input pin becomes "H", the output side (pins 10-16 of each IC) conducts with GND (pin 8) to determine the NF constant of IC3.
IC3 (M5218P-A)	Recording equalizer amplifier	It operates on single power supply and is used with the input voltage pulled up to 1/2 Vb. Its NF constant is determined by IC1:IC2, thus providing the recording equalizer characteristics.

### Playback Amplifier Unit (X87-1210-00)

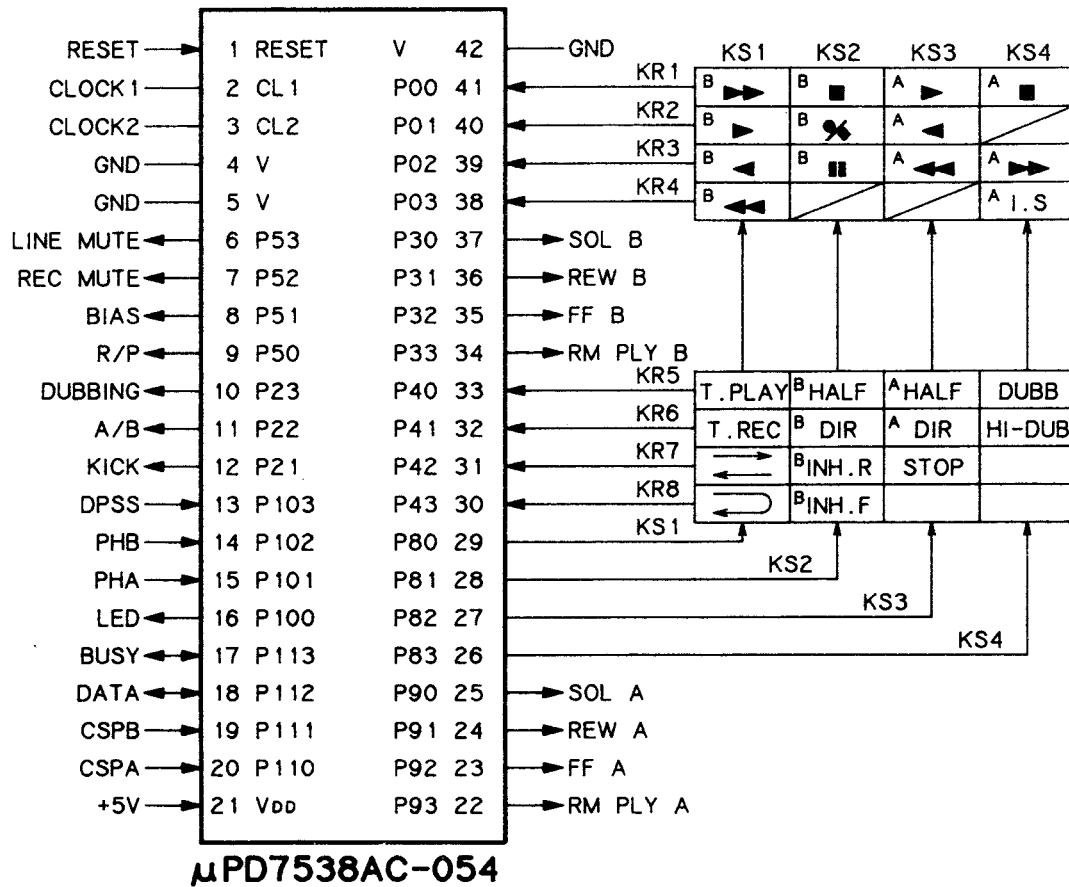
Components	Application/Functions	Operation/Conditions/Interchangeability
IC1 (CXA1115BP)	Playback equalizer amplifier	
Q1,2	A deck PB LEVEL adjustment switch	Operates according to A/B selection control (X28-1890Q4). ON in A deck PLAY mode. OFF in other modes.
Q3,4	B deck PB LEVEL adjustment switch	Operates according to A/B selection control (X28-1899Q4). OFF in B deck PLAY mode. ON in other modes.

### Electric Circuit Module (W02-0693-05)

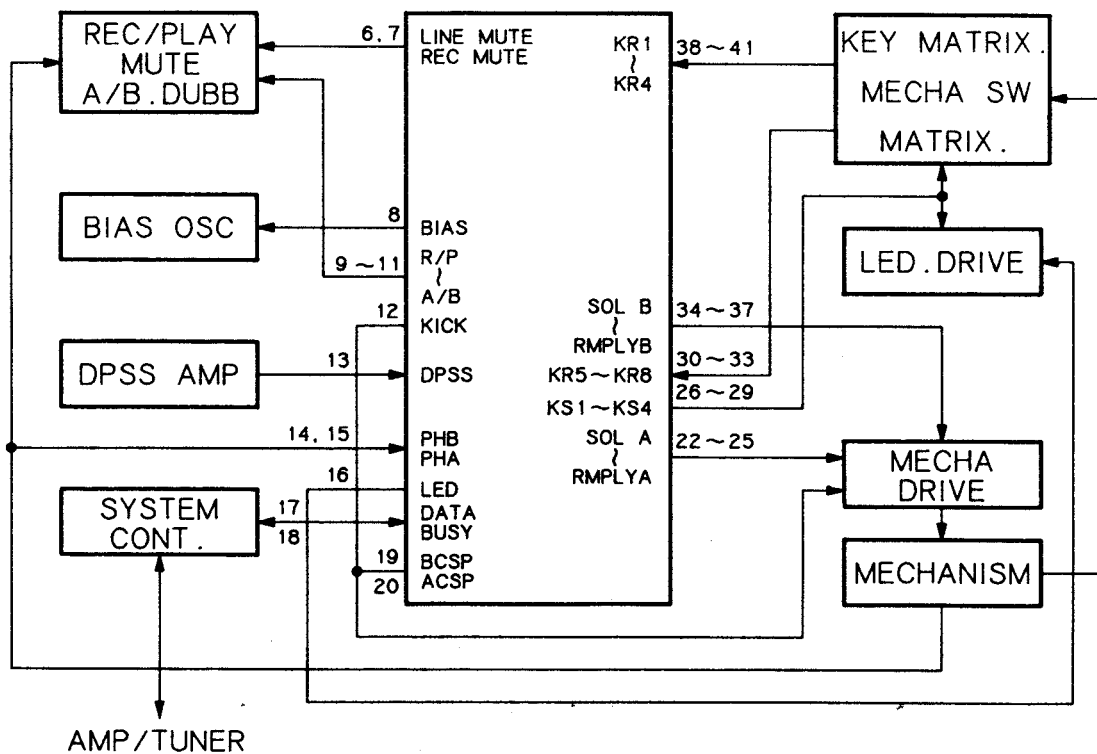
Components	Application/Functions	Operation/Conditions/Interchangeability
IC1 (HA12088ANT)	Dolby B/C IC	

# CIRCUIT DESCRIPTION

Port Layout ( $\mu$ PD7538AC-054)



Block Diagram (Microcomputer and the peripheral components)



## CIRCUIT DESCRIPTION

### ● Explanation of terminals

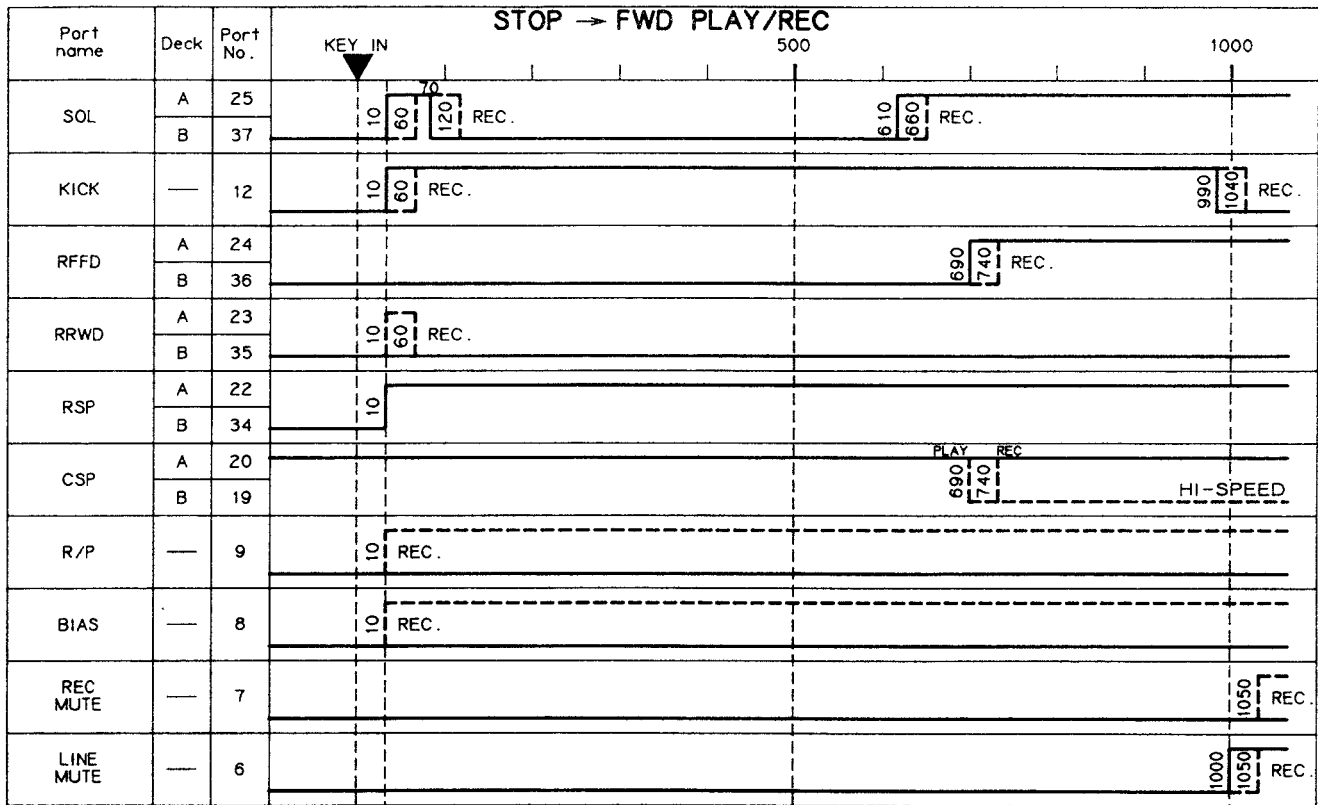
Explanation of column:

Pin No.	Port	I/O	Pin Name	Function												
1	RESET	I	RESET	Reset signal input H: Noraml L: Reset												
2,3	CL1, CL2	—	CLOCK													
4	VPRE	I	GND													
5	VLOAD	I	GND													
6	P53	O	LINE MUTE	Line mute control. H: Mute OFF L: Mute ON												
7	P52	O	REC MUTE	REC mute control H: mute OFF L: mute ON												
8	P51	O	BIAS	Bias OSC control.												
9	P50	O	R/P	R/P Selection signal output for dolby H: REC L: PLAY												
10	P23	O	DUBBING	High dubbing signal output H: Hi-dub L: Nor-dub												
11	P22	O	A/B	P.B.EQ A/B Selection H: A L: B												
12	P21	O	KICK	Solenoid kick output												
13	P103	I	DPSS	DPSS blank detection signal input												
14	P102	I	PH.B	B deck mechanism rotation detection signal input												
15	P101	I	PH.A	A deck mechanism rotation detection signal input												
16	P100	O	LED	LED segment drive signal												
17	P113	I/O	BUSY	System control serial input/ouput												
18	P112	I/O	DATA	System control serial input/ouput												
19	P111	O	CSP B	B deck capstan motor control H:NOR L:HI.												
20	P110	O	CSP A	A deck capstan motor control H:NOR L:HI.												
21	VDD	—	VDD	+5V												
22	P93	O	RMPY A	A Reel motor speed control H:PLAY L:FF.												
23	P92	O	REW A	Reel motor drive A.												
24	P91	O	FFA	<table><tr><th>Pin No. Mode \</th><th>②③ ③⑤</th><th>②④ ③⑥</th></tr><tr><td>FF</td><td>H</td><td>L</td></tr><tr><td>RVS</td><td>L</td><td>H</td></tr><tr><td>STOP</td><td>L</td><td>L</td></tr></table>	Pin No. Mode \	②③ ③⑤	②④ ③⑥	FF	H	L	RVS	L	H	STOP	L	L
Pin No. Mode \	②③ ③⑤	②④ ③⑥														
FF	H	L														
RVS	L	H														
STOP	L	L														
25	P90	O	SOL A	A deck solenoid control H: ON L: OFF												
26~29	P83~P80	O	KS4~KS1	Key scan output H:OFF L:ON												
30~33	P43~P40	I	KR8~KR5	Key return input H: Input signal is present. L: Input signal is absent.												
34	P33	O	RMPY B	B reel motor speed control H: PLAY L: FF												
35	P32	O	REW B	Reel motor drive B. (same as A deck)												
36	P31	O	FF B													
37	P30	O	SOL B	B deck solenoid control H: ON L: OFF												
38~41	P03~P00	I	KR4~KR1	Key return input H: Input signal is present L: Input signal is absent												
42	Vss	—	GND													

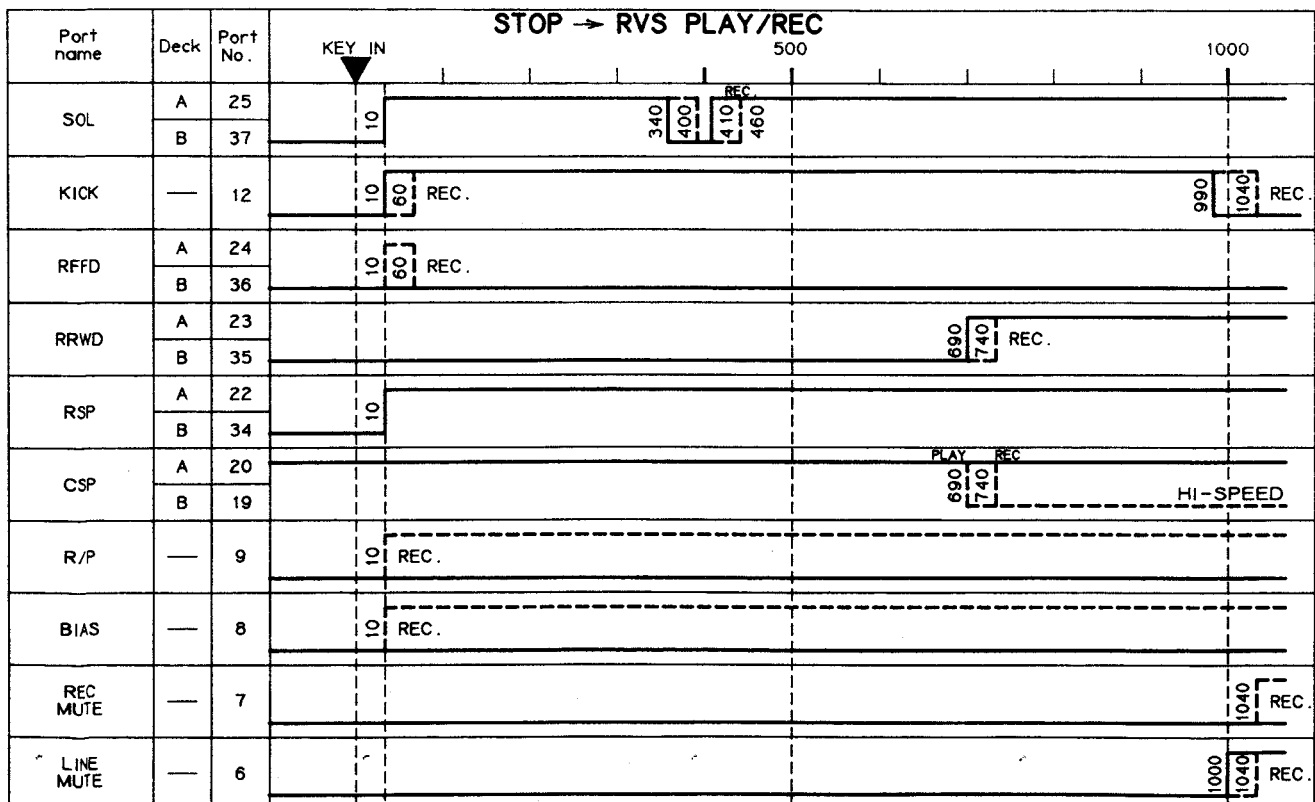
## CIRCUIT DESCRIPTION

### ● Timing chart

(UNIT: msec)

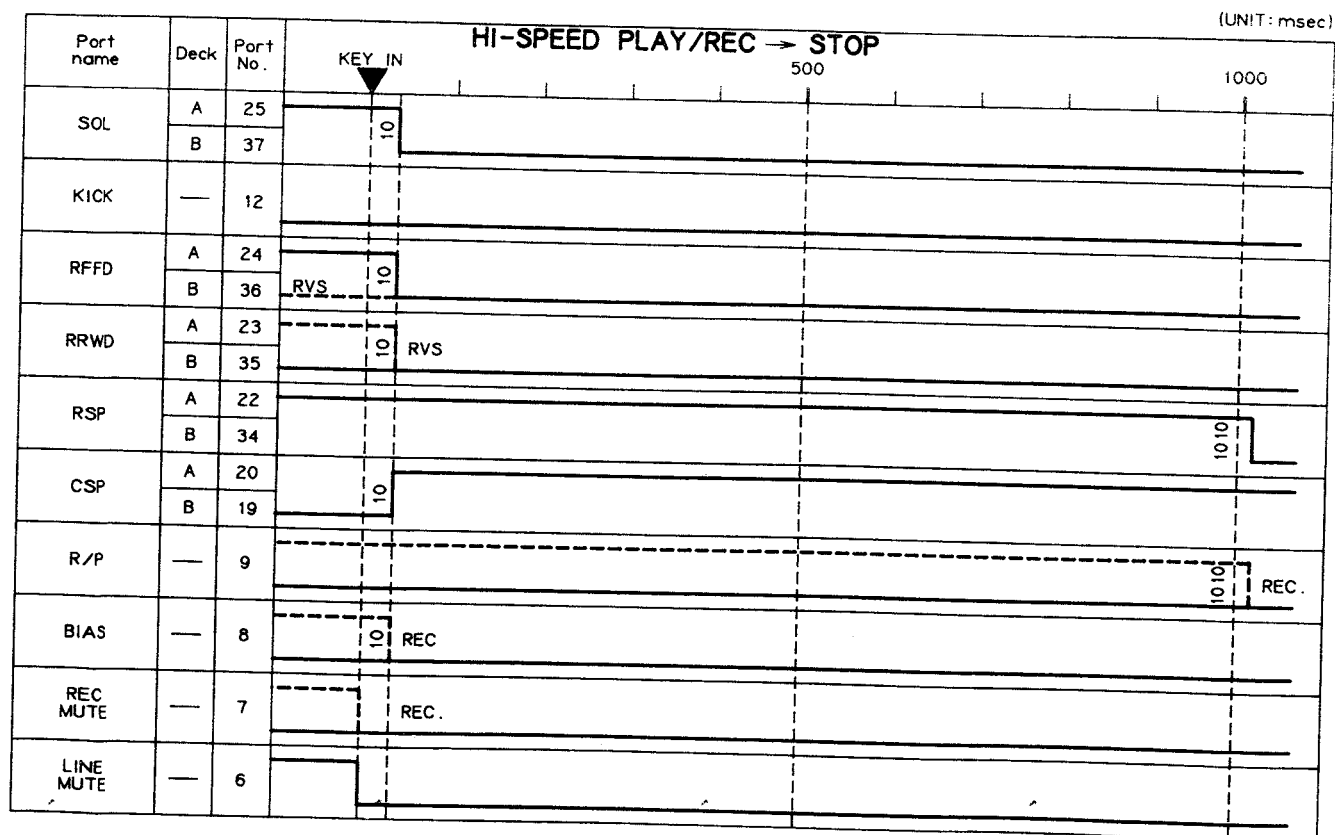
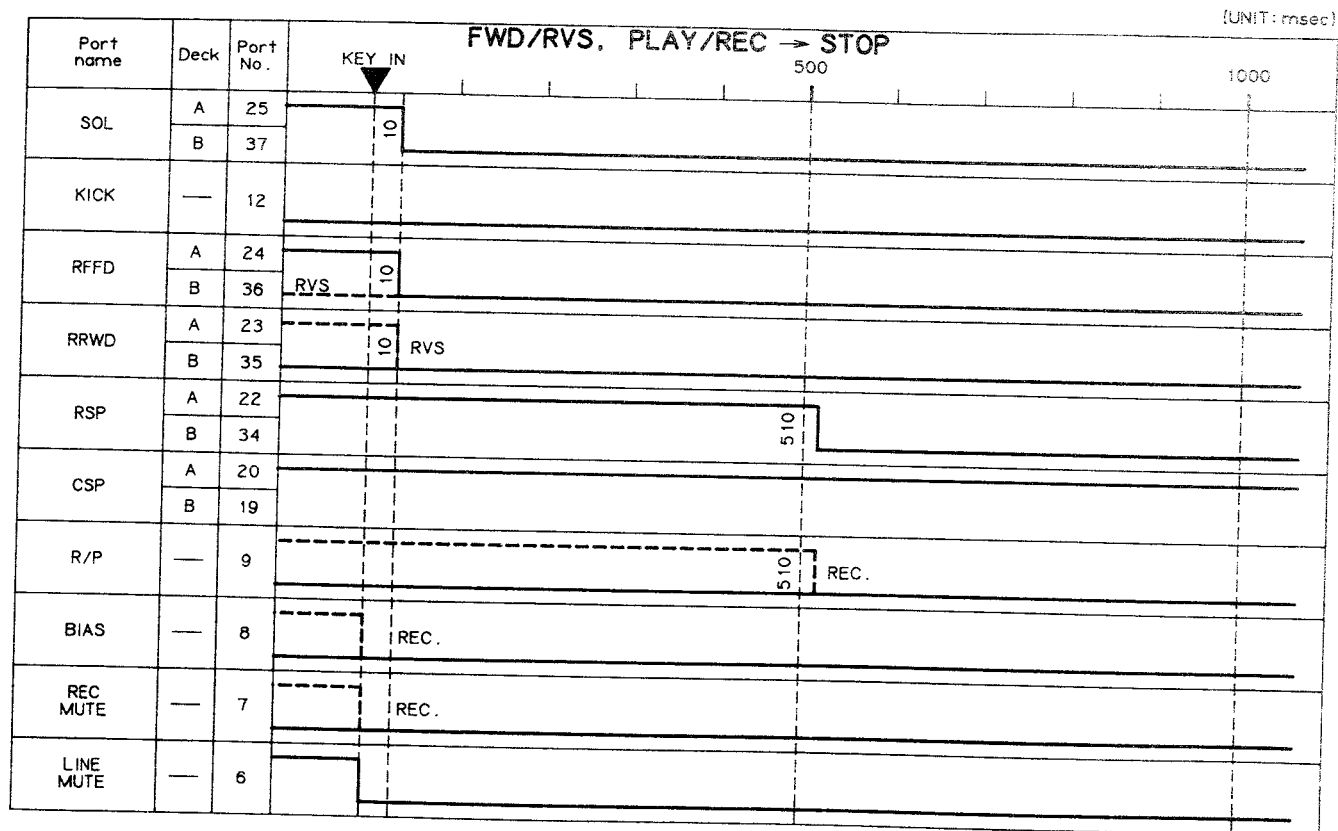


(UNIT: msec)



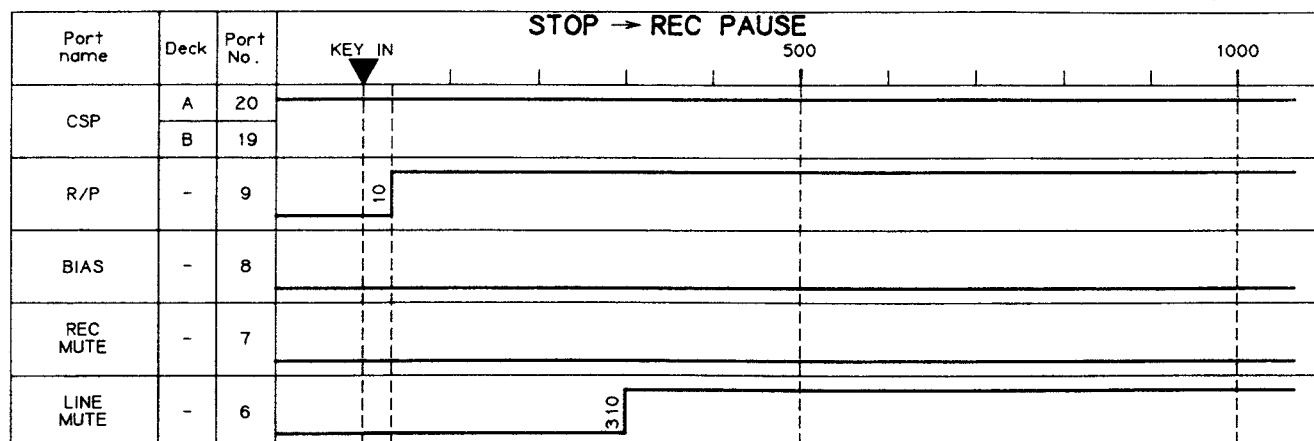


## CIRCUIT DESCRIPTION

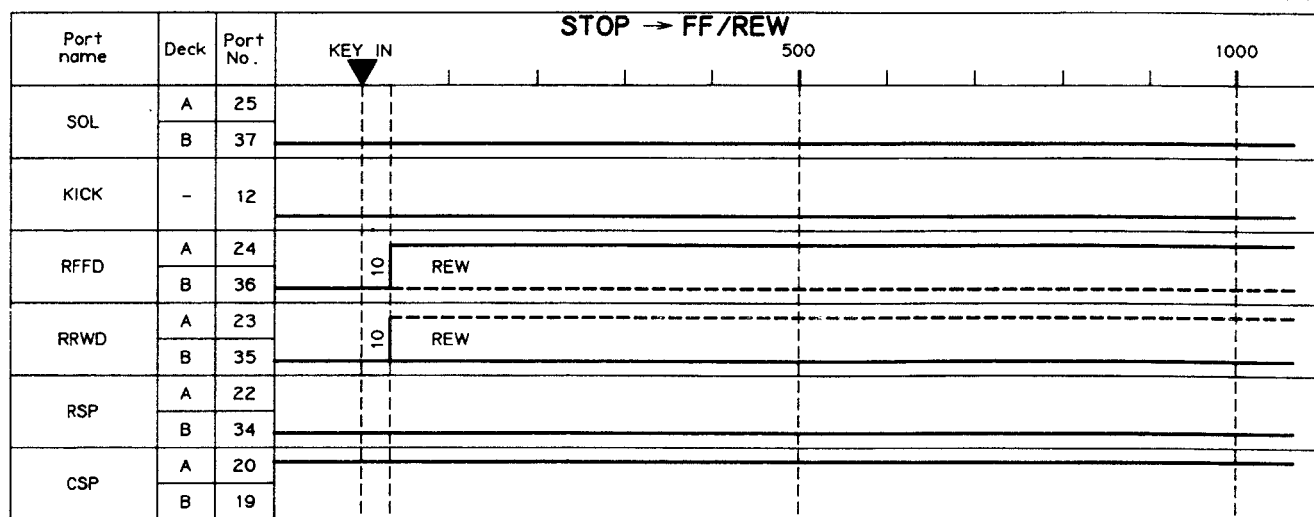


## CIRCUIT DESCRIPTION

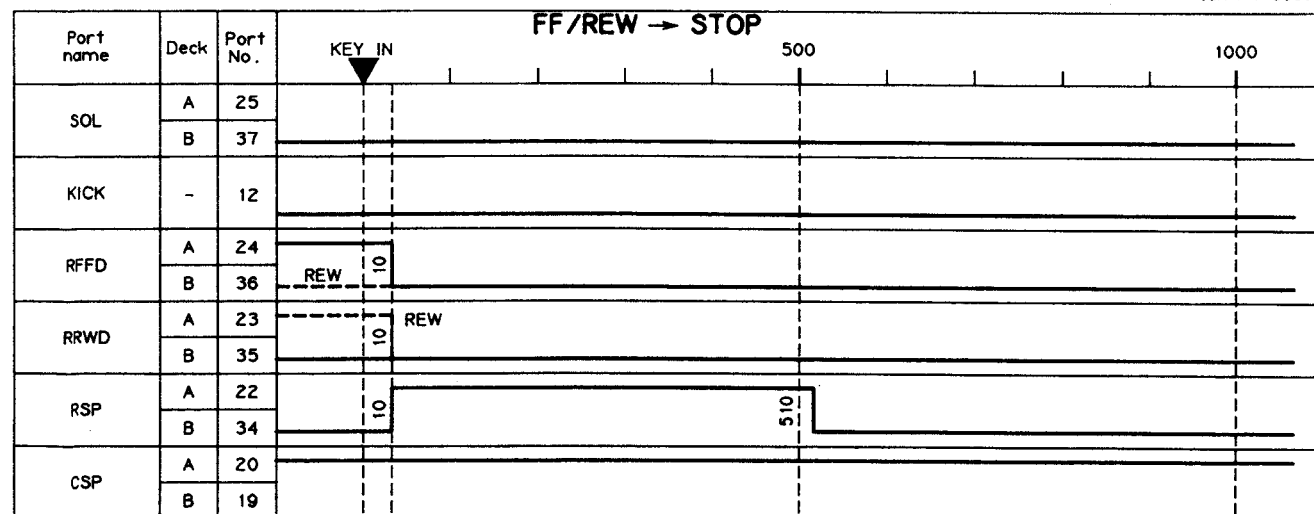
(UNIT: msec)



(unit: msec.)

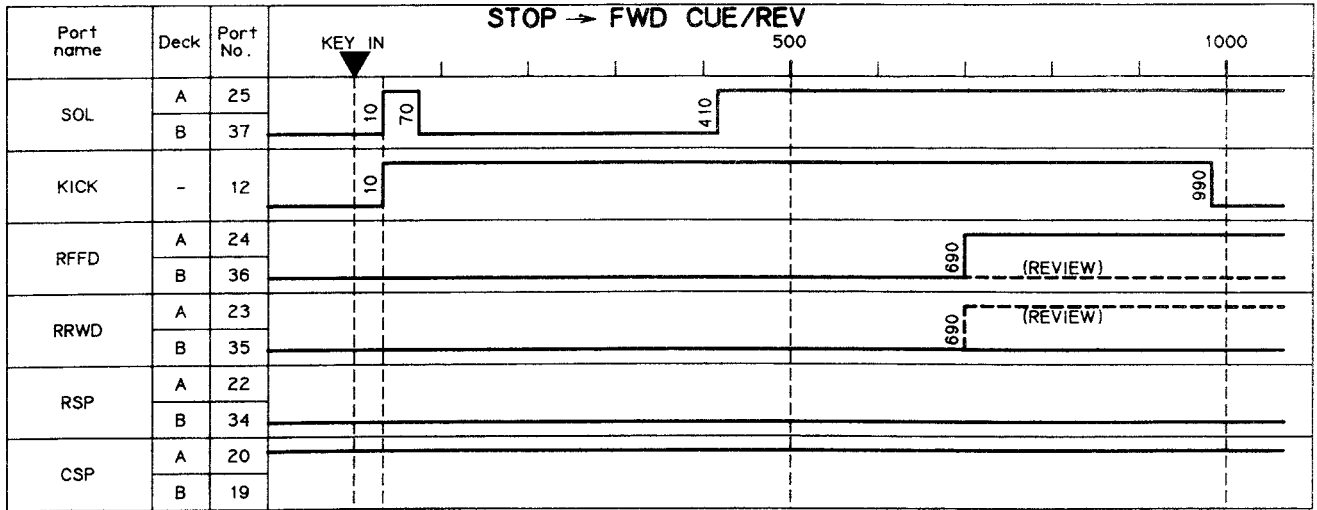


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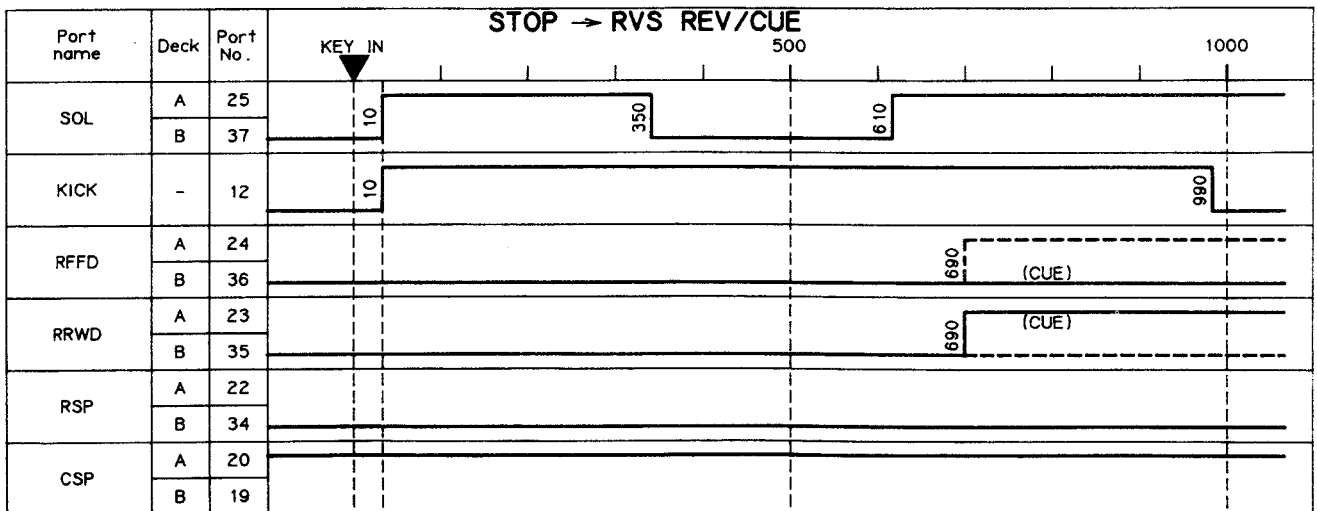


## CIRCUIT DESCRIPTION

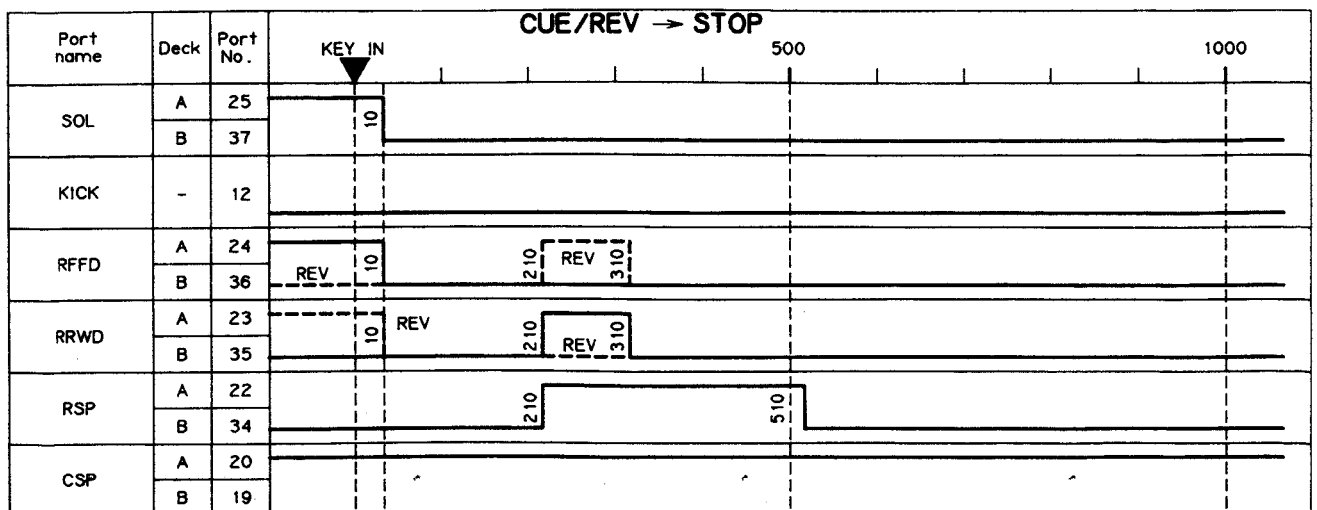
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(unit:msec.)



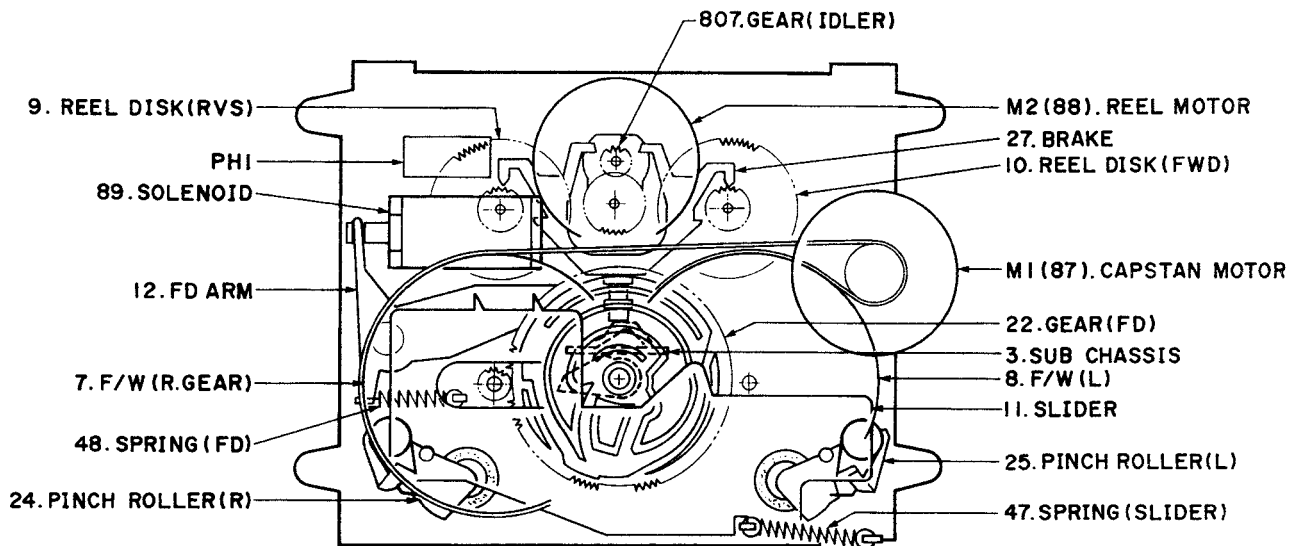
(unit:msec.)



# MECHANISM DESCRIPTION

A figure ( ) in a following drawing denotes a reference number in the parts list.

Drawings are rear perspective view, unless otherwise specified.



Parts layout (Perspective view from the rear)

Driving Power	: More than 100g·cm
Take up Torque	: 35 ~ 60g·cm (3.3V)
FF.REW Torque	: 110 ~ 170 g·cm (8.0V)
Back Tension Torqu	: 2 ~ 6g·cm

## 1. STOP to FWD (forward) PLAY/REC Operation

- 1-1) The PLAY/REC key is pressed.
- 1-2) By a signal from the microcomputer, the SOLENOID (89) turns ON.
- 1-3) The FD ARM (12) swings in the direction of the arrow ①.
- 1-4) The pin ② of the FD ARM (12) is released from the stopper ③ of the FD GEAR (22).
- 1-5) The FD GEAR (22) rotates slightly by pressure from the FD ARM pin ②, and meshes with the gear of the FLYWHEEL (7).

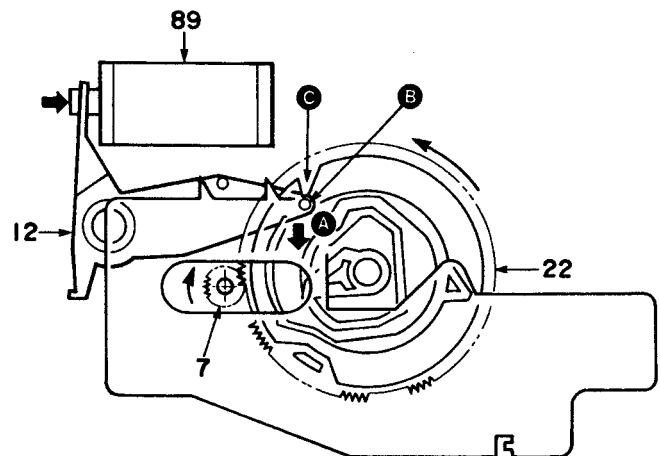


Fig.1

## MECHANISM DESCRIPTION

- 1-6) After a short time, the SOLENOID (89) turns OFF. Since the FD ARM is pulled by the FD SPRING (48), the pin ⑤ is disengaged from the protrusions (E1 or E2) of the SLIDER.
- 1-7) Since the SLIDER (11) is pulled by the SPRING (47), the protrusion ⑥ swings along the FD GEAR orbit ③ until it reaches the FWD PLAY/REC position.

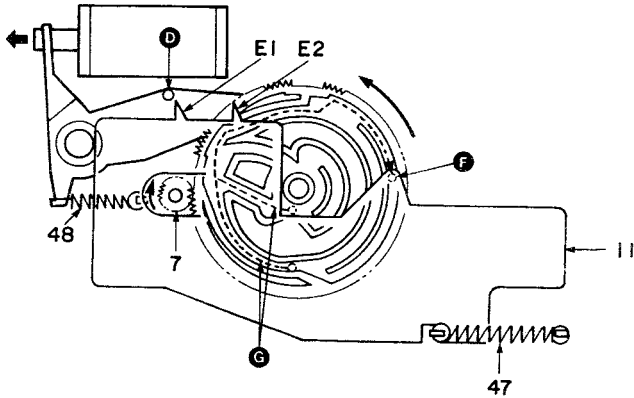


Fig. 2

- 1-8) The bent section ⑧ of the SUB-CHASSIS (3) is lifted by the cam ④ of the FD GEAR.

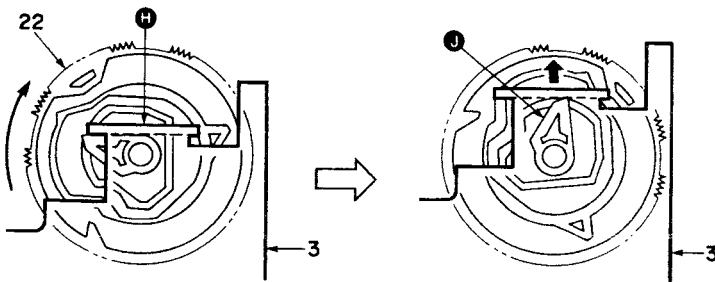


Fig. 3 (Perspective view from the front)

- 1-9) The pin ⑩ of the BRAKE (27) moves up along the FD GEAR orbit ①, and the BRAKE of the REEL ASS'Y (9) (10) is released.

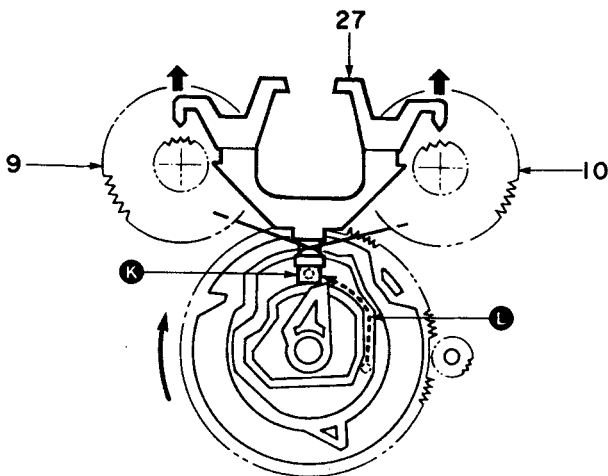


Fig. 4 (Perspective view from the front)

- 1-10) When the FD GEAR has rotated by approximately half, the SOLENOID turns ON and the FD ARM swings in direction ①, and the protrusion (E1) of the SLIDER is held by the pin ⑤ of the FD ARM.

- 1-11) When the FD GEAR has rotated by 3/4 of a turn, the FD GEAR rotation stops because the non-toothed section of the flywheel gear has been reached.

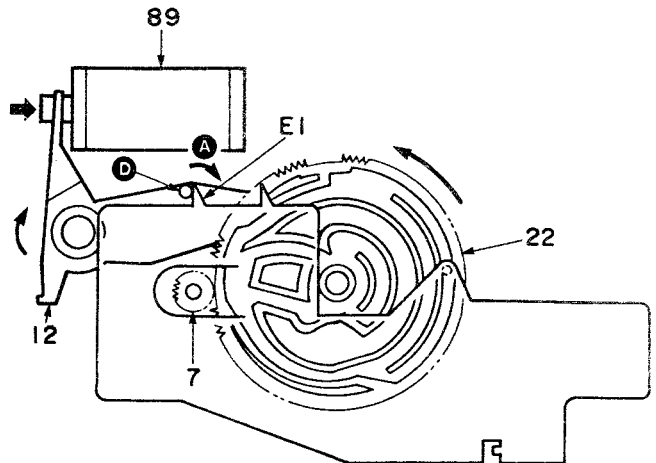


Fig. 5

- 1-12) The FD GEAR is locked in position of Fig. 6 by the pin ⑥ of the FD ARM, and the P/R and E heads fixed on the SUB-CHASSIS are held in the PLAY/REC position.

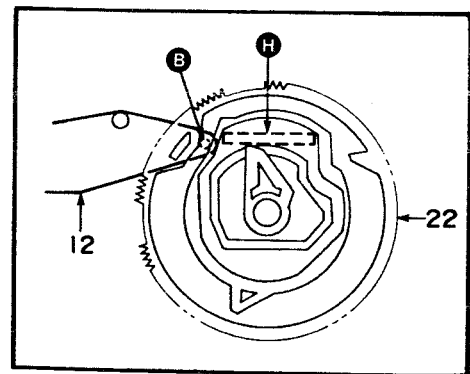


Fig. 6

## MECHANISM DESCRIPTION

1-13) When the SUB-CHASSIS comes to the top, the spring (N) of the pinch roller (L) does not contact the SUB-CHASSIS edge (H) because the SLIDER is fixed in position of Fig. 7 by the pin (O) of the FD ARM, and the pinch roller is not pressed against the capstan because the boss (M) is held by the groove of the SLIDER.

1-14) Since the spring (O) of the pinch roller (R) is pushed up by the SUB-CHASSIS edge (S) and the boss (P) is in the free section of the SLIDER groove, the pinch roller is pressed against the capstan and the FWD P/R operation starts.

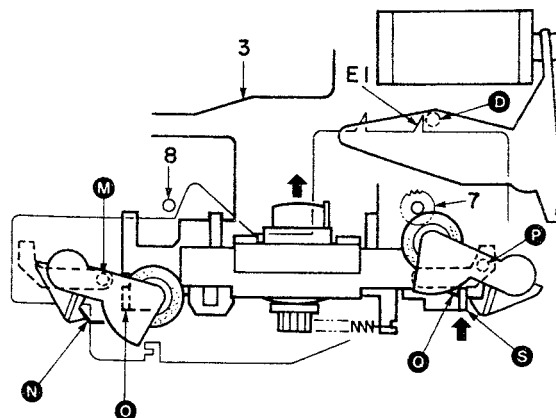


Fig. 7 (Perspective view from the front)

### 2. STOP to RVS (reverse) PLAY/REC Operation

2-1) The PLAY/REC key is pressed.

2-2) By a signal from the microcomputer, the SOLENOID (89) turns ON.

2-3) The FD ARM (12) swings in the direction of the arrow (A).

2-4) The pin (B) of the FD ARM (12) is released from the stopper (C) of the FD GEAR (22).

2-5) The FD GEAR (22) rotates slightly by pressure from the FD ARM pin (B), and meshes with the gear of the FLYWHEEL (7).

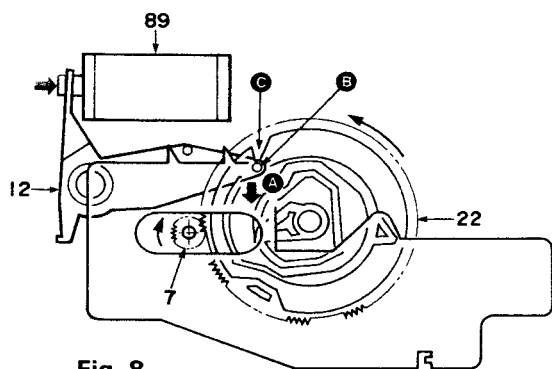


Fig. 8

2-6) The FD GEAR continues to rotate while the SOLENOID remains ON.

2-7) The SLIDER is held in position (E1 or E2) by the FD ARM pin (O), while the pin (F) moves to the RVS P/R position along the orbit (T). At this time, the SOLENOID turns OFF to avoid the protrusion (E2) of the SLIDER, and turns ON again immediately after passing it.)

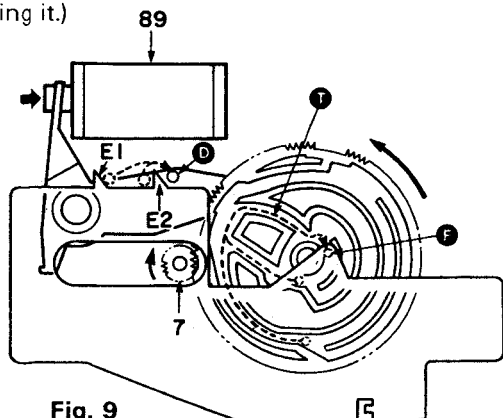


Fig. 9

2-8) The bent section (H) of the SUB-CHASSIS (3) is lifted in the direction of the arrow by the cam (J) of the FD GEAR.

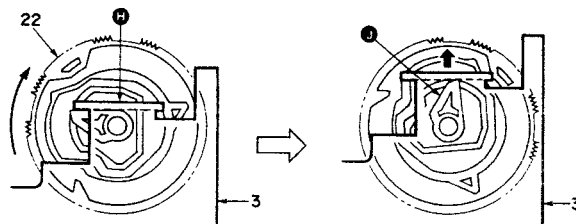


Fig. 10 (Perspective view from the front)

2-9) The pin (K) of the BRAKE (27) moves up along the FD GEAR orbit (L), and the BRAKE of the REEL ASS'Y (9) (10) is released.

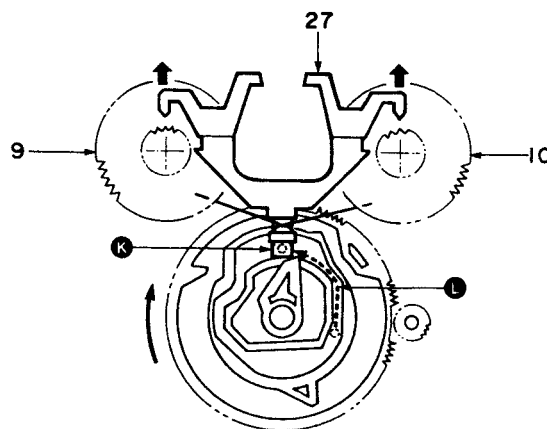


Fig. 11 (Perspective view from the front)

## MECHANISM DESCRIPTION

2-10) When the FD GEAR has rotated by 3/4 of a turn, the FD GEAR rotation stops, because the non-toothed section of the flywheel gear has been reached.

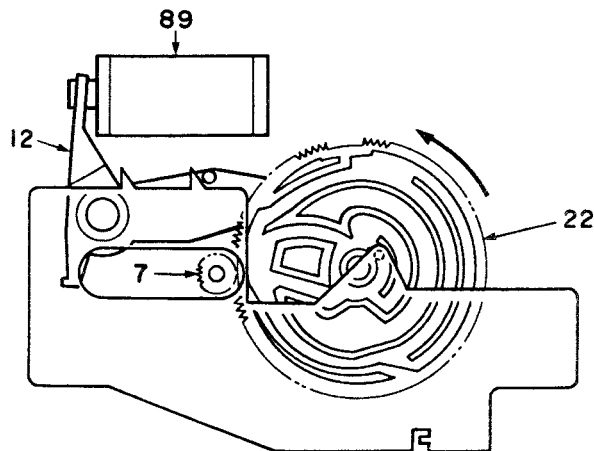


Fig. 12

2-11) The FD GEAR (22) is held in position of Fig. 13 by the pin (B) of the FD ARM, and the heads on the SUB-CHASSIS are held in the PLAY/REC position.

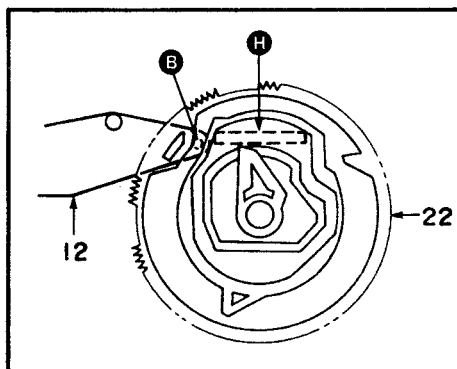


Fig. 13

### 3. FWD (forward) PLAY/REC to STOP Operation

- 3-1) The STOP key is pressed.
- 3-2) By a signal from the microcomputer, the SOLENOID (89) turns OFF.
- 3-3) The FD ARM (12) is swung by the SPRING (48), and the FD GEAR (22) is pushed by the SUB-CHASSIS and rotated in direction (A).
- 3-4) The FD GEAR meshes with the GEAR (7) of the FLYWHEEL, and starts to rotate. The pin (F) of the SLIDER (11) passes through the orbit (V) and stops at position of Fig. 15.

2-12) When the SUB-CHASSIS comes to the top, the spring (N) of the pinch roller (L) does not contact the SUB-CHASSIS edge (S) because the SLIDER is fixed in position of Fig. 14 by the pin (D) of the FD ARM, and the pinch roller (R) is not pressed against the capstan because the boss (P) is held by the groove of the SLIDER.

2-13) Since the spring (N) of the pinch roller (L) is pushed up by the SUB-CHASSIS edge (H) and the boss (M) is in the free section of the SLIDER groove, the pinch roller is pressed against the capstan and the RVS P/R operation starts.

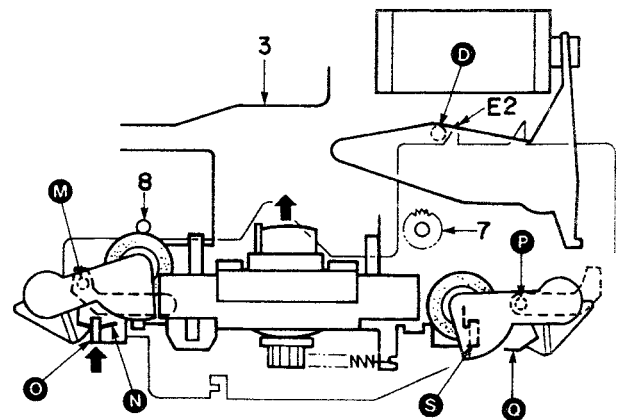


Fig. 14 Perspective view from the front

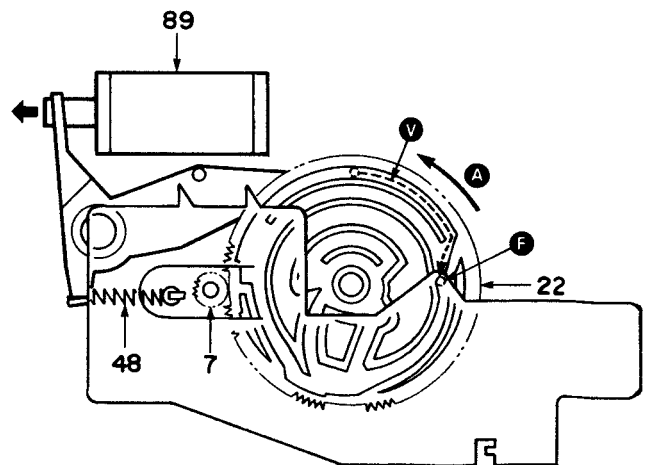


Fig. 15



## MECHANISM DESCRIPTION

- 3-5) The FD ARM pin (B) passes through the FD GEAR orbit (U) and comes in contact with the stopper (C). As this position corresponds to the non-tooth section of the FD GEAR, the FD GEAR stops rotating.

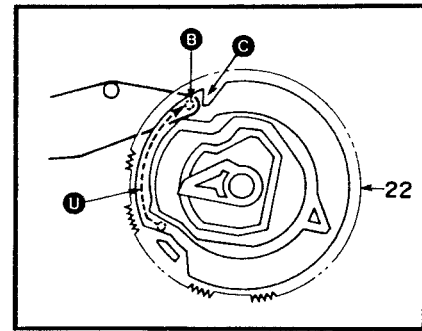


Fig. 16

### 4. RVS (reverse) PLAY/REC to STOP Operation

- 4-1) The STOP key is pressed.  
 4-2) By a signal from the microcomputer, the SOLENOID (89) turns OFF.  
 4-3) The FD ARM (12) is swung by the SPRING (48), and the FD GEAR (22) is pushed by the SUB-CHASSIS and rotated in direction (A).  
 4-4) The FD GEAR meshes with the GEAR (7) of the FLYWHEEL, and starts to rotate. The pin (F) of the SLIDER (11) passes through the orbit (W) and stops at position of Fig. 17.

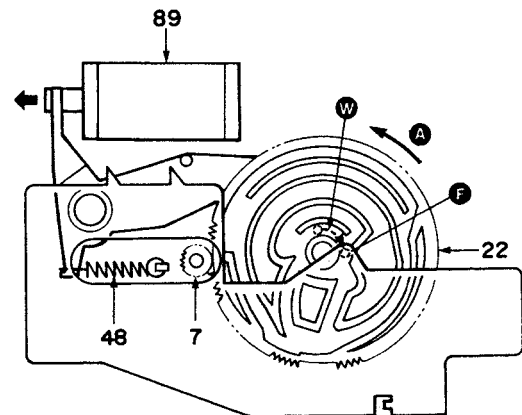


Fig. 17

- 4-5) The FD ARM pin (B) passes through the FD GEAR orbit (X) and comes in contact with the stopper (C). As this position corresponds to the non-tooth section of the FD GEAR, the FD GEAR stops rotating.

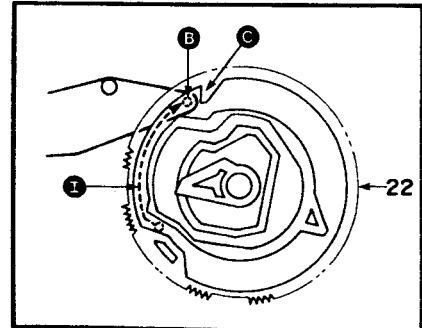


Fig. 18

### 5. STOP to FF/REW Operation

- 5-1) The FF/REW key is pressed.  
 5-2) By a signal from the microcomputer, the REEL MOTOR (M2) starts to rotate in the appropriate direction.  
 5-3) According to the rotating direction of the REEL MOTOR, the IDLER ASS'Y (23) rotates in the appropriate direction.  
 5-4) In the CUE/REVIEW position, the brake of the REEL ASS'Y (9) (10) has already been released, so the REEL ASS'Y gear meshes with the IDLER ASS'Y gear, and the REEL ASS'Y starts to rotate in the appropriate direction.

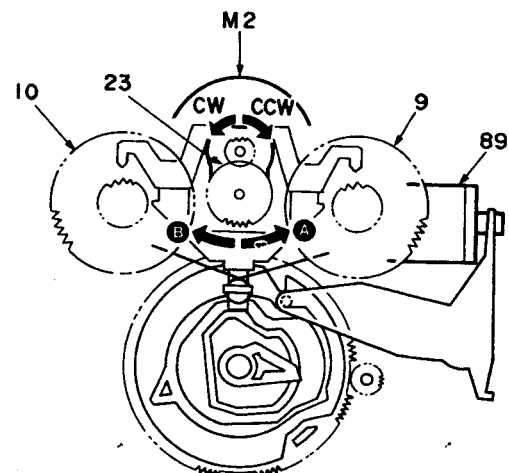


Fig. 19 (Perspective view from the front)

## MECHANISM DESCRIPTION

### 6. FWD (forward)/RVS (reverse) PLAY to CUE/REVIEW Operation

- 6-1) The FF/REW key is pressed during playback.
- 6-2) The SOLENOID turns OFF, and the deck enters STOP mode.
- 6-3) The same operation as in the "STOP to PLAY" transition occurs.
- 6-4) In the transition from FWD PLAY to CUE/REVIEW, the pin (E) of the SLIDER passes through the FD GEAR orbit (Z) and moves to the CUE/REVIEW position of Fig. 20.  
In the transition from RVS PLAY to CUE/REVIEW, the pin (E) of the SLIDER passes through the FD GEAR orbit (Y) and moves to the CUE/REVIEW position of Fig. 20.
- 6-5) When the FD GEAR has rotated by 3/4 of a turn, the FD GEAR rotation stops, because the non-toothed section of the flywheel gear has been reached.
- 6-6) The SLIDER is held by the protrusion (E1) of the SLIDER and pin (D) of the FD ARM.

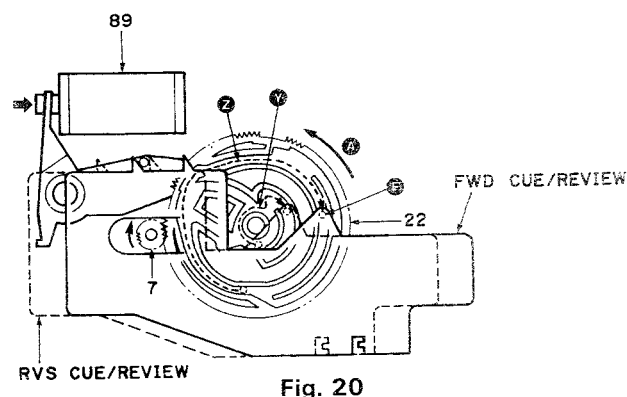


Fig. 20

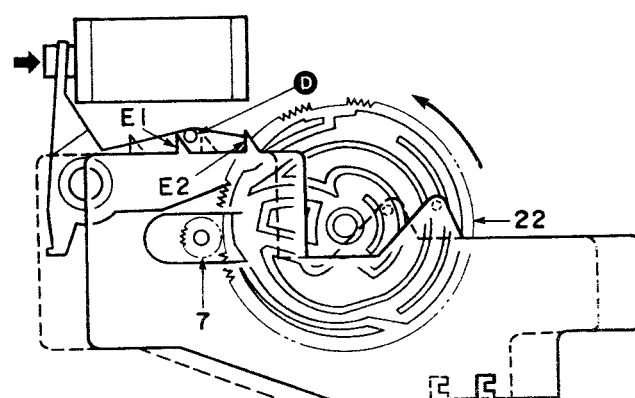


Fig. 21

- 6-7) When the SUB-CHASSIS comes to the top, the SLIDER is in one of the positions of Fig. 22 shown in the diagram. In either case, the spring (N) (Q) of the pinch roller (L, R) is not lifted by the SUB-CHASSIS edge (C) (S), so the pinch roller is not pressed against the capstan.
- 6-8) By a signal from the microcomputer, the REEL MOTOR starts to rotate and the CUE or REVIEW operation starts.

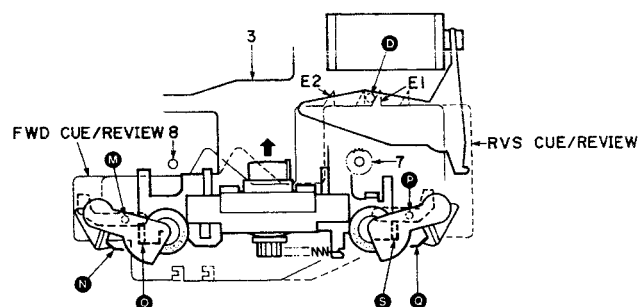


Fig. 22 (Perspective view from the front)

### 7. Head Switching Operation

The HEAD is rotated by movement of the SLIDER, and the FWD and RVS position are switched over.

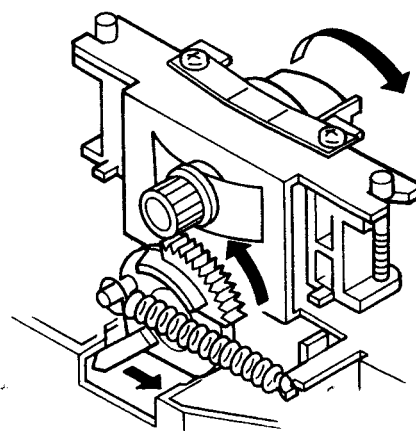


Fig. 23 Head Switching (FWD → RVS)

## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE TAPE DECK SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
CASSETTE DECK SECTION		TAPE: NORMAL, DOLBY: OFF, INPUT: LINE					0dBs=0.775V
I REC/PLAY HEAD							
[1]	DEMAGNETIZATION	—	—	POWER: OFF Remove the cassette door.	REC/PLAY head	Demagnetize the REC/PLAY head with a head demagnetizer.	
[2]	CLEANING	—	—	PLAY	REC/PLAY head erase head, capstan, pinch roller.	Clean the REC/PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
[3]	AZIMUTH	MTT-114, TCC-153 10kHz, -10dB	(B)	PLAY	Azimuth adjustment screw	Maximum output.	(a)
II PC BOARD OF MECHANISM (X29-1900)							
(1)	TAPE SPEED (HI SPEED)	MTT-111, TCC-110 3kHz	(B)	Connect a jumper between GND and TP3. PLAY	DECK A: VR2 DECK B: VR2 (X29-1900)	Adjust the tape speed so that a 6kHz signal is produced at the center of the tape.	
(2)	TAPE SPEED (NORMAL)	MTT-111, TCC-110 3kHz	(B)	PLAY	DECK A: VR1 DECK B: VR1 (X29-1900)	Adjust the tape speed so that a 3kHz signal is produced at the center of the tape.	
III PC BOARD (X87-1210-00, X28-189X-XX, X87-1140-02)							
<1>	PLAYBACK LEVEL	MTT-150 400Hz(200nWb)	(B)	PLAY	DECK A: VR1(L) VR2(R) DECK B: VR3(L) VR4(R) (X87-1210-00)	Output level: -6.0dBs	
		MTT-256 315Hz(160nWb)				Output level: -9.0dBs	
		MTT-256U, TCC-160 315Hz(220nWb)				Output level: -5.0dBs	
<2>	BIAS CURRENT	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Adjust VR3 so that the REC monitor output becomes -29dBs at 1kHz, then record and reproduce signal of 1kHz and 10kHz in alternation.	VR1(L) VR2(R) (X28-189X-XX)	Record 1kHz and 10kHz in alternation and adjust the variable resistors which control the bias current so that the same playback level is obtained.	
<3>	RECORD LEVEL	(A) 1kHz, -10dBs	(B)	Record and reproduce a 1kHz signal under the conditions set in <2>.	VR1(L) VR2(R) (X87-1140-02)	Adjust the variable resistors so that a playback level of -9dBs is obtained.	

## REGLAGES

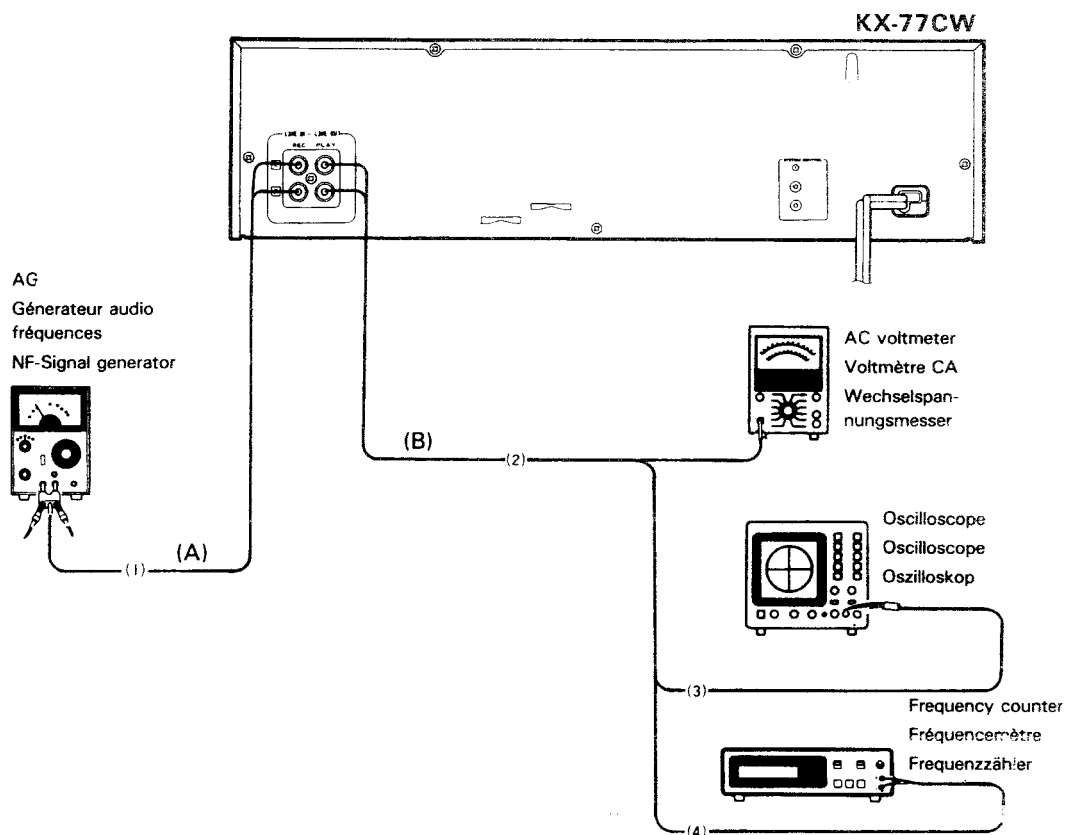
N°	ITEM	REGLAGE DE L' ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU MAGNETO -PHONE A CASSETTE	POINTS DE L' ALIGNEMENT	ALIGNER POUR	FIG.
SECTION DU MAGNETOPHONE		TAPE: NORMAL, DOLBY: OFF, ENTREE: LINE					0dBs = 0,775V
I TETE D' ENREGISTREMENT/LECTURE							
[ 1 ]	DEMAGNETISATION	—	—	POWER: OFF Eloigner la porte.	Tête D' ENREGISTREMENT/ LECTURE	Demagnétiser la tête D' ENREGISTREMENT/LECTURE avec un démagnétiseur de tête.	
[ 2 ]	NETTOYAGE	—	—	PLAY	Tête D' ENREGISTREMENT/ LECTURE tête d'effacement, cabestan, galetpresseur.	Nettoyer la tête D' ENREGISTREMENT/LECTURE la tête d'effacement, le cabestan et le galetpresseur avec un coton-tige légèrement imbibé d' alcool.	
[ 3 ]	AZIMUT	MTT-114, TCC-153 10kHz, -10dB	(B)	PLAY	Vis d' azimut	Sortie maximer.	(a)
II PLAQUE IMPRIMEE (X29-1900)							
( 1 )	VITESSE DE DEFILEMENT (HI SPEED)	MTT-111, TCC-110 3kHz	(B)	Connecter un cablage entre les GND et TP3. PLAY	DECK A: VR2 DECK B: VR2 (X29-1900)	Régler la vitesse de bande de façon qu' un signal de 6kHz soit produit au centre de la bande.	
( 2 )	VITESSE DE DEFILEMENT (NORMAL)	MTT-111, TCC-110 3kHz	(B)	PLAY	DECK A: VR1 DECK B: VR1 (X29-1900)	Régler la vitesse de bande de façon qu' un signal de 3kHz soit produit au centre de la bande.	
III PLAQUE IMPRIMEE (X87-1210-00, X28-189X-XX, X87-1140-02)							
< 1 >	NIVEAU DE LECTURE	MTT-150 400Hz(200nWb)	(B)	PLAY	DECK A: VR1 (G) VR2 (D) DECK B: VR3 (G) VR4 (D) (X87-1210-00)	Niveau de sortie: -6,0dBs	
		MTT-256 315Hz(160nWb)				Niveau de sortie: -9,0dBs	
		MTT-256U, TCC-160 315Hz(220nWb)				Niveau de sortie: -5,0dBs	
< 2 >	COURANT DE POLARISATION	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Régler VR3 de façon que la sortie de moniteur REC soit de -29dBs à 1kHz, puis en registrer et reproduire des signaux de 1kHz et 10kHz en alternance.	VR1 (G) VR2 (D) (X28-189X-XX)	Enregistrer un signal de 1kHz et 10kHz en alternance et ajuster les résistances variables qui commandent le courant de polarité de façon à obtenir le même niveau de lecture.	
< 3 >	NIVEAU D' ENREGISTREMENT	(A) 1kHz, -10dBs	(B)	Enregistrer et reproduire un signal de 1kHz dans les conditions précisées en <2>.	VR1 (G) VR2 (D) (X87-1140-02)	Ajuster les résistances variables de façon à obtenir un niveau de lecture de -9dBs.	

## ABGLEICH

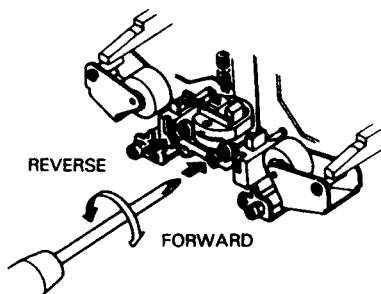
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	KASSETTENGÄRÄT-EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
CASSETTEN-DECK ABTEILUNG TAPE: NORMAL, DOLBY: OFF, EINGANG: LINE					0dBs=0,775V		
I AUFNAHME/WIEDERGABE KOPF							
[ 1 ]	ENTMAGNETISIERUNG	—	—	POWER: OFF Den Kassettenfach deckel oben herausziehen.	AUFNAHME/WIEDERGABE-Kopf	Entmagnetisierung von dem AUFNAHME/WIEDERGABE Kopf mit einem Tonkopf Entmagnetisierungsdrossel.	
[ 2 ]	REINIGUNG	—	—	PLAY	AUFNAHME/WIEDERGABE-Kopf Löschkopf, Tonwelle, Andruckrolle.	AUFNAHME/WIEDERGABE-Kopf, Löschkopf, Tonwelle und Andruckrolle mit einem leicht mit Alkohol befeuchteten Wattebausch reinigen.	
[ 3 ]	AZIMUT-EINSTELLUNG	MTT-114, TCC-153 10kHz, -10dB	(B)	PLAY	Azimut-Einstellschraube	Maximal Ausgang.	(a)
II GEDRUCKTE SCHALTPLATTE (X29-1900)							
( 1 )	BANDGESCHWINDIGKEIT (HI SPEED)	MTT-111, TCC-110 3kHz	(B)	Einen Schaltdraht zwischen GND und TP3 anschließen. PLAY	DECK A: VR2 DECK B: VR2 (X29-1900)	Die Bandgeschwindigkeit so justieren, daß ein 6kHz Signal auf der Mitte des Bands erzeugt wird.	
( 2 )	BANDGESCHWINDIGKEIT (NORMAL)	MTT-111, TCC-110 3kHz	(B)	PLAY	DECK A: VR1 DECK B: VR1 (X29-1900)	Die Bandgeschwindigkeit so justieren, daß ein 3kHz Signal auf der Mitte des Bands erzeugt wird.	
III GEDRUCKTE SCHALTPLATTE (X87-1210-00, X28-189X-XX, X87-1140-02)							
< 1 >	WIEDERGABE-PEGEL	MTT-150 400kHz(200nWb)	(B)	PLAY	DECK A: VR1 (L) VR2 (R) DECK B: VR3 (L) VR4 (R) (X87-1210-00)	Ausgangspegel: -6,0dBs	
		MTT-256 315kHz(160nWb)				Ausgangspegel: -9,0dBs	
		MTT-256U, TCC-160 315kHz(220nWb)				Ausgangspegel: -5,0dBs	
< 2 >	LEERLAUFSTROM	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	VR3 so justieren, daß der REC Monitorausgang -29dBs bei 1kHz wird, und danach abwechselnd Signale von 1kHz und 10kHz aufnehmen und wiedergeben.	VR1 (L) VR2 (R) (X28-189X-XX)	Signale von 1kHz und 10kHz abwechselnd aufnehmen und die Regelwiderstände, die den Vormagnetisierungsstrom regeln, so justieren, daß der gleiche Wiedergabepegel erzielt wird.	
< 3 >	AUFNAHMEPEGEL	(A) 1kHz, -10dBs	(B)	Ein 1kHz Signal unter den in Punkt <2> beschriebenen Bedingungen aufnehmen und reproduzieren.	VR1 (L) VR2 (R) (X87-1140-02)	Die Regelwiderstände so justieren, daß ein wiedergabepegel von -9dBs erzielt wird.	

## ADJUSTMENT/REGLAGES/ABGLEICH

### SYSTEM CONNECTIONS

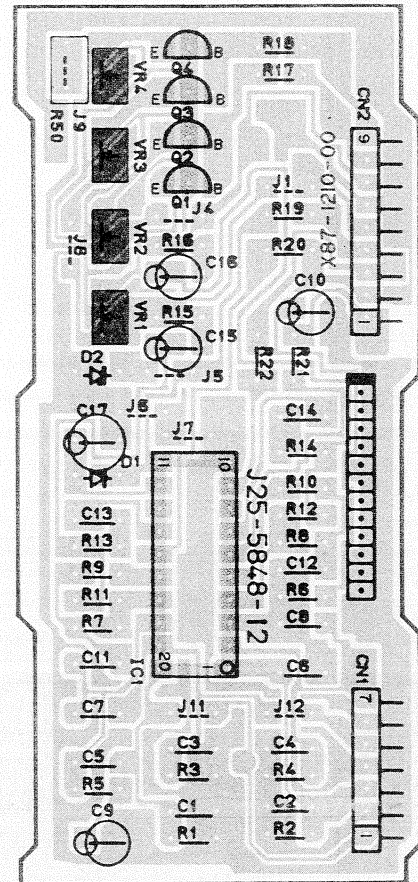


### (a) AZIMUTH ADJUSTMENT SCREW

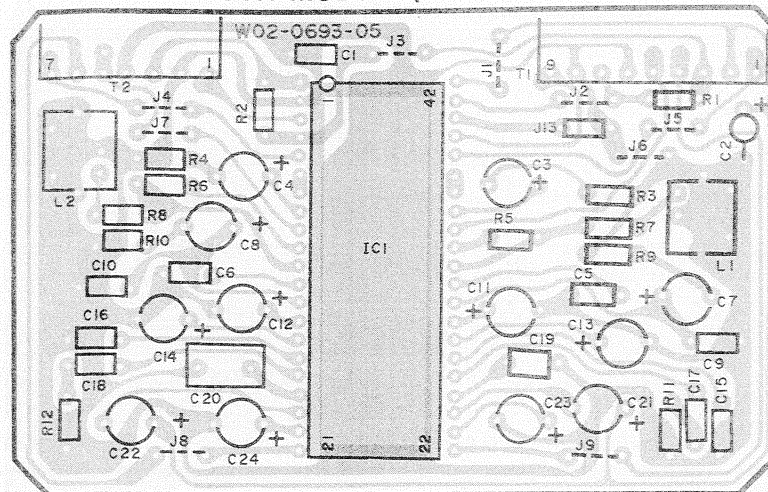




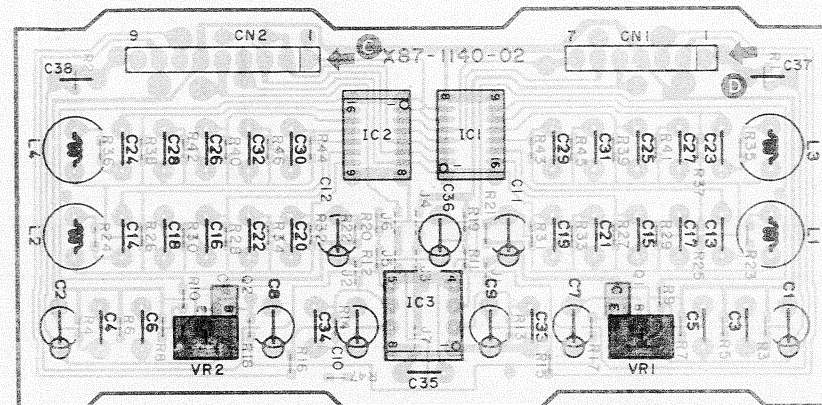
PLAYBACK AMPLIFIER UNIT (X87-1210-00)



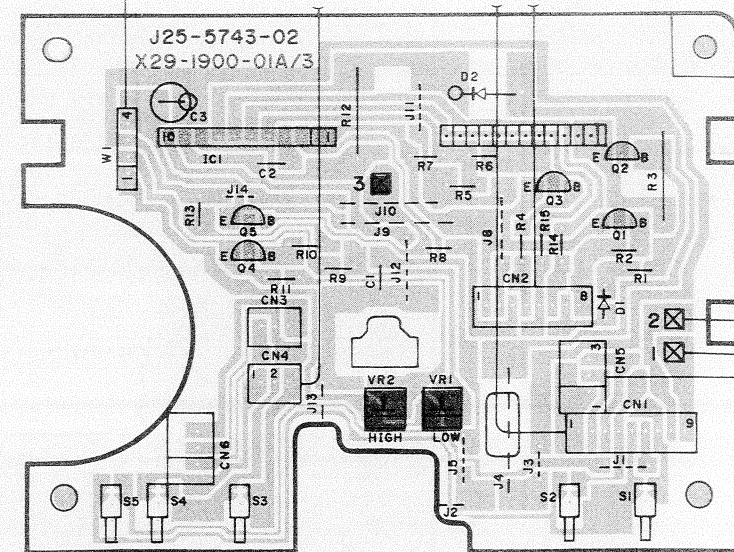
ELECTRIC CIRCUIT MODULE (W02-0693-05)



RECORDING/PLAYBACK UNIT (X87-1140-02)

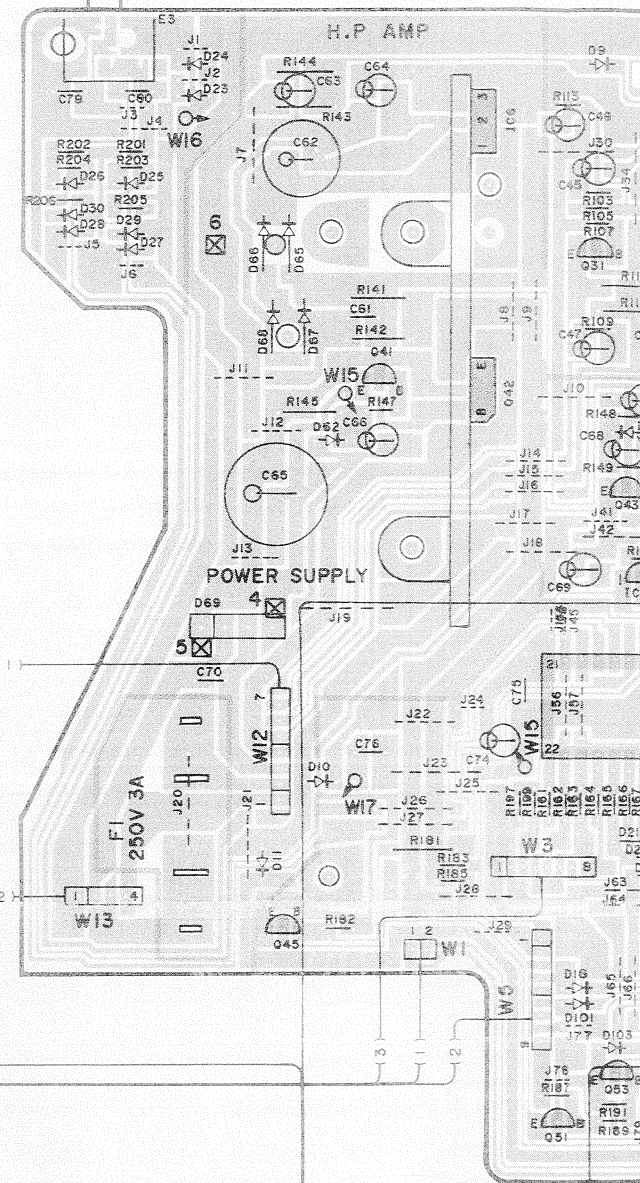


CONTROL CIRCUIT (X29-1900-01)

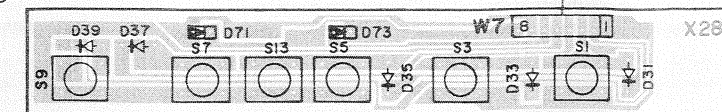


SYSTEM CONTROL

RECORD/PLAYBACK

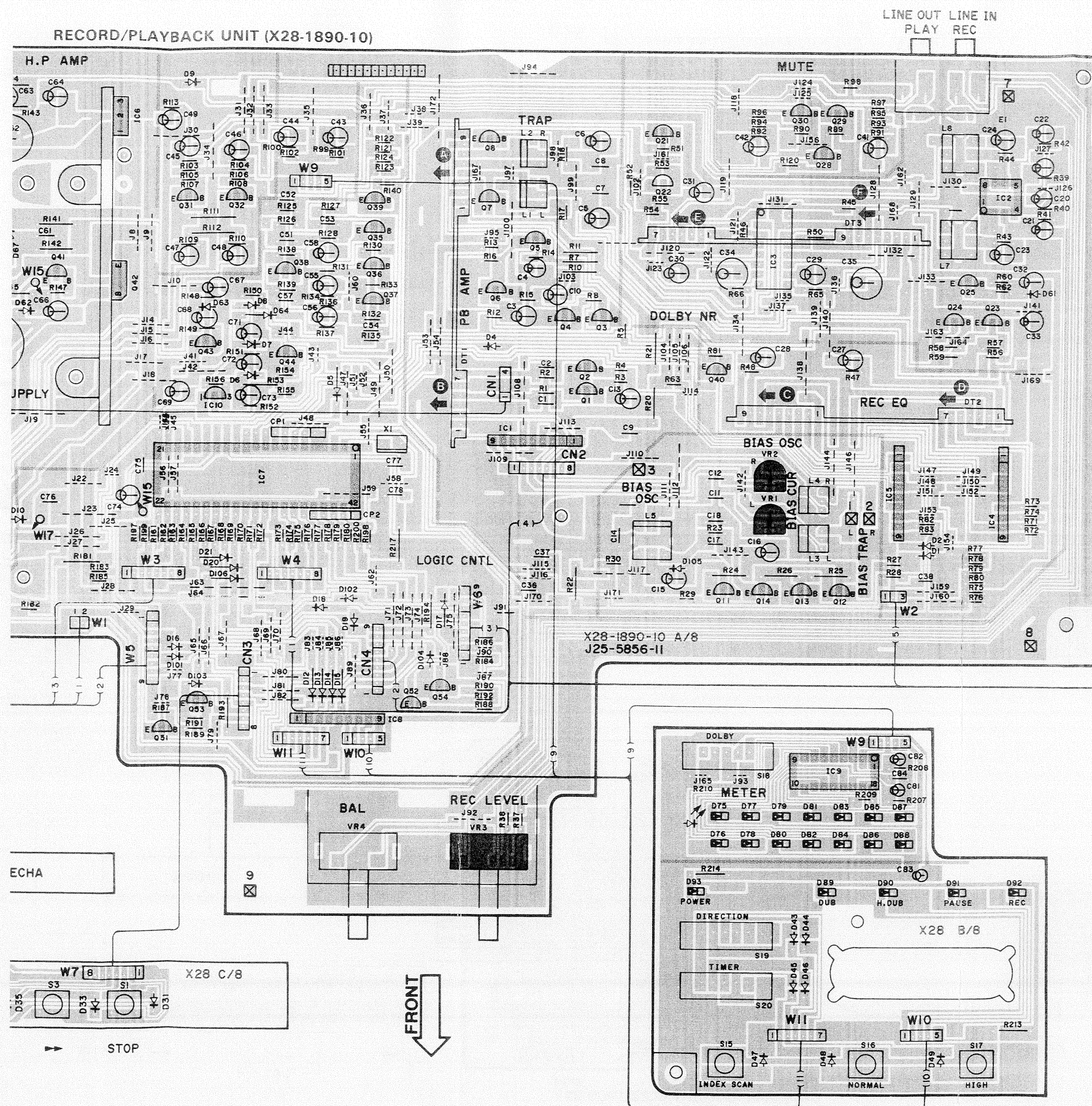


A MECHA



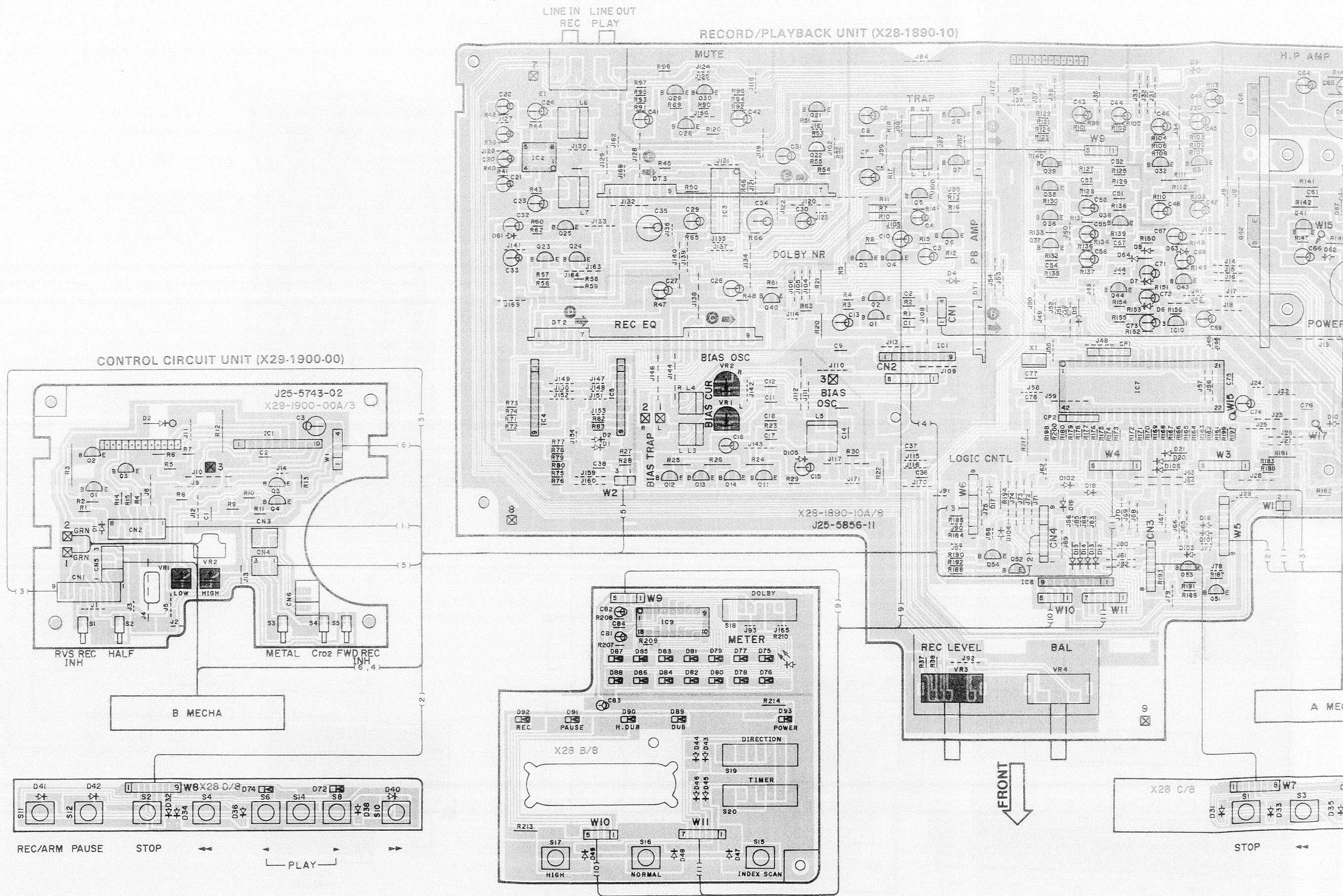
PLAY STOP



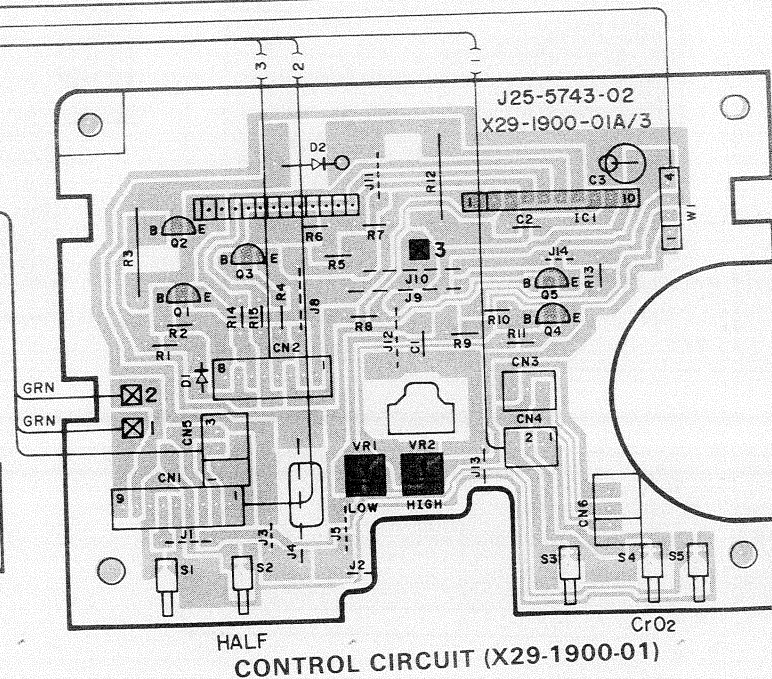
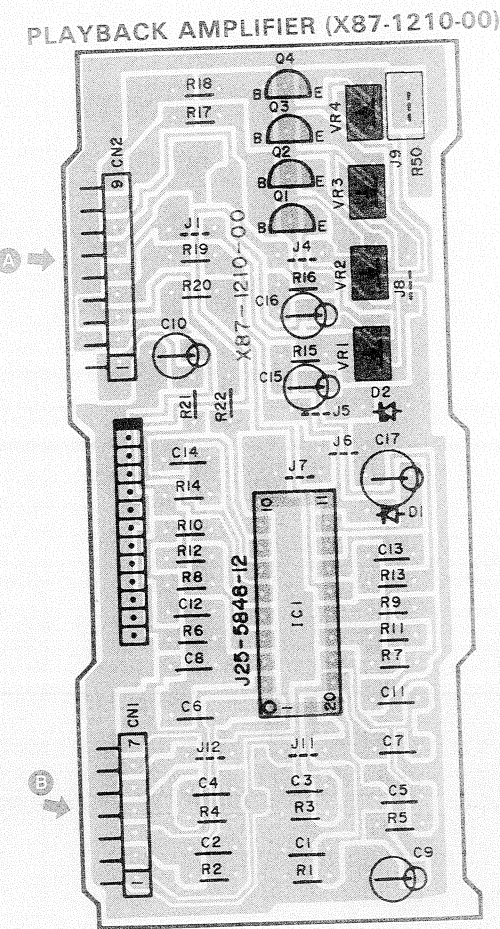
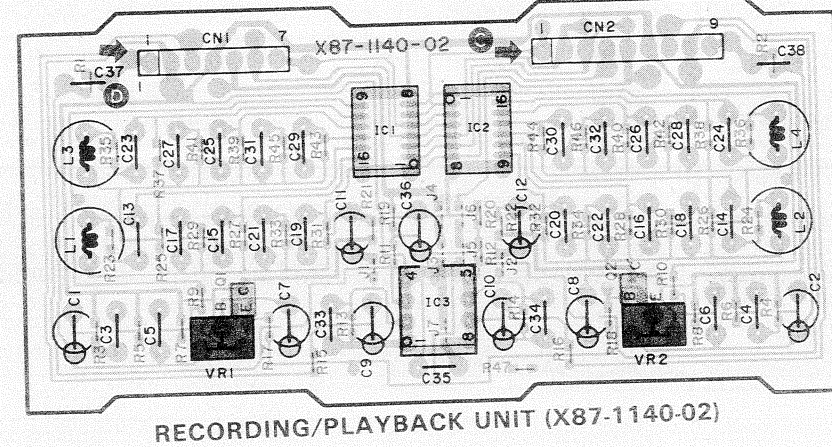
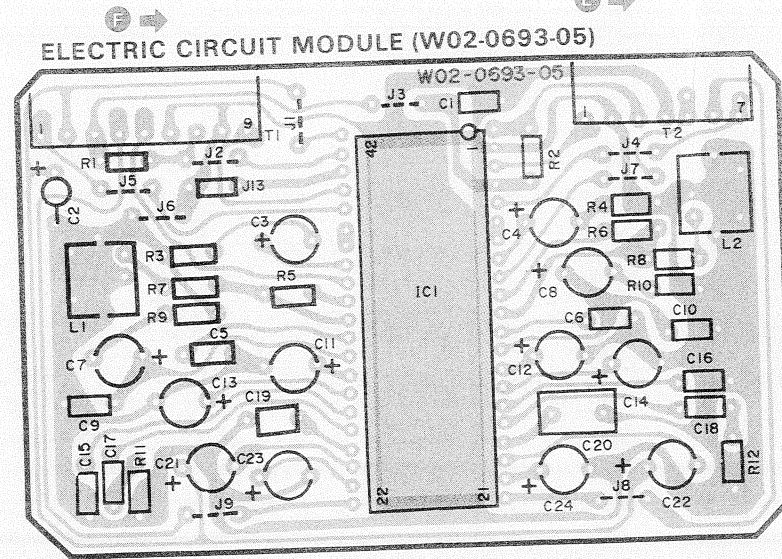
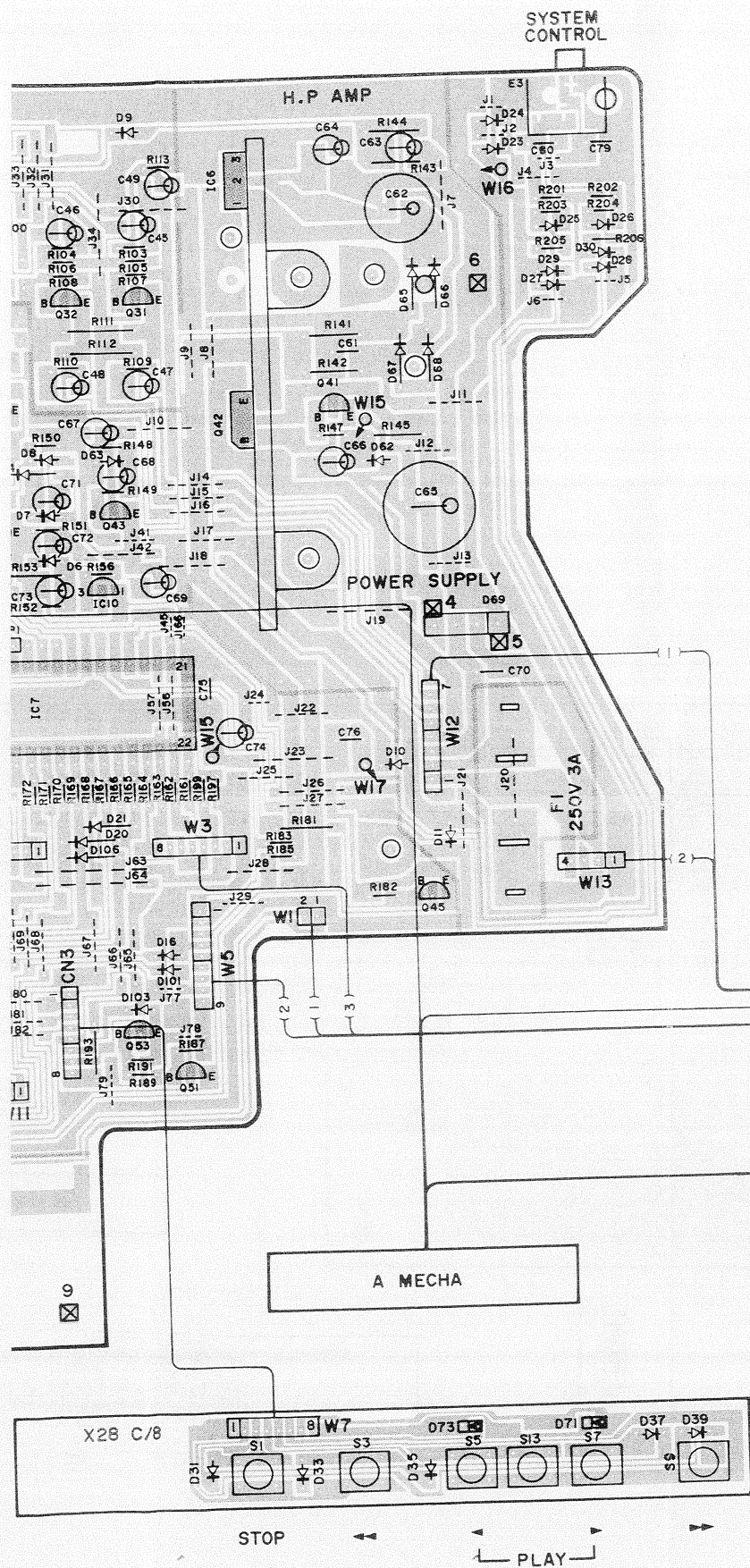




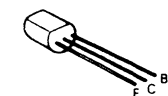
P. C. BOARD (Foil side View)







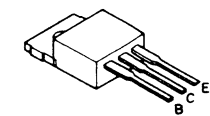




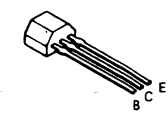
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2SC2320  
2SC2878  
2SC3246  
2SC945(A)  
2SD863



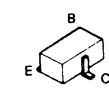
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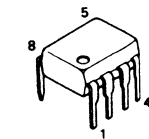
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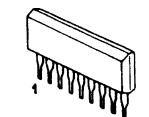
2SA933S  
2SC1740S



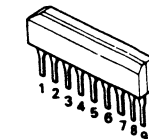
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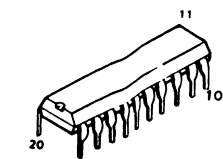
NJM4560D-A



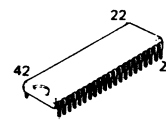
UPC1330HA



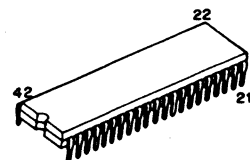
TD62554S



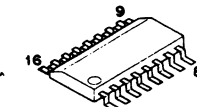
CXA1115BP



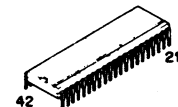
M5218P-A



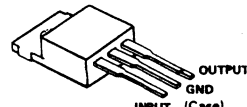
UPD7538AC-054



BA6251F



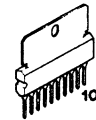
HA12088ANT



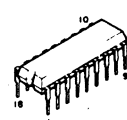
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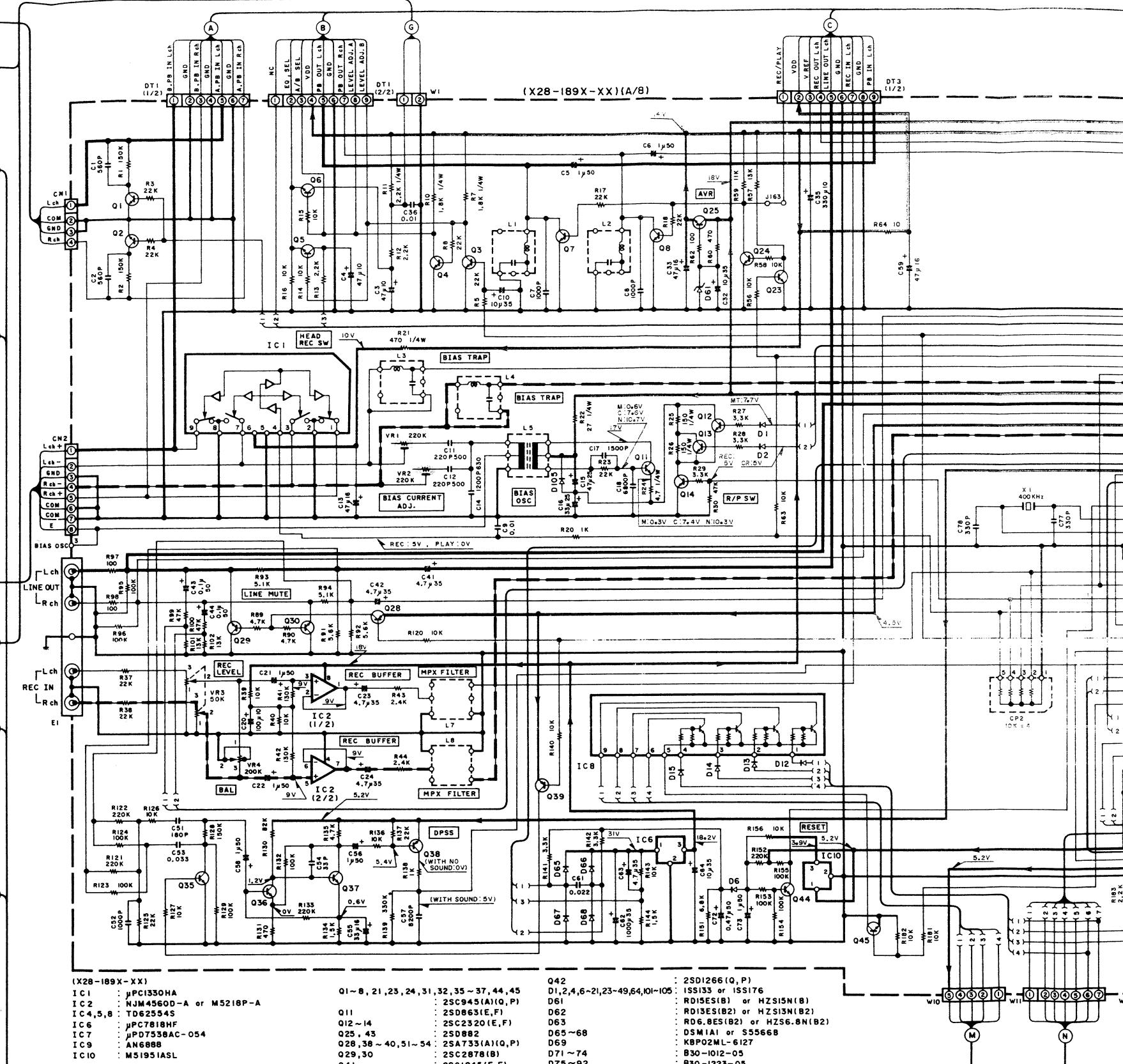
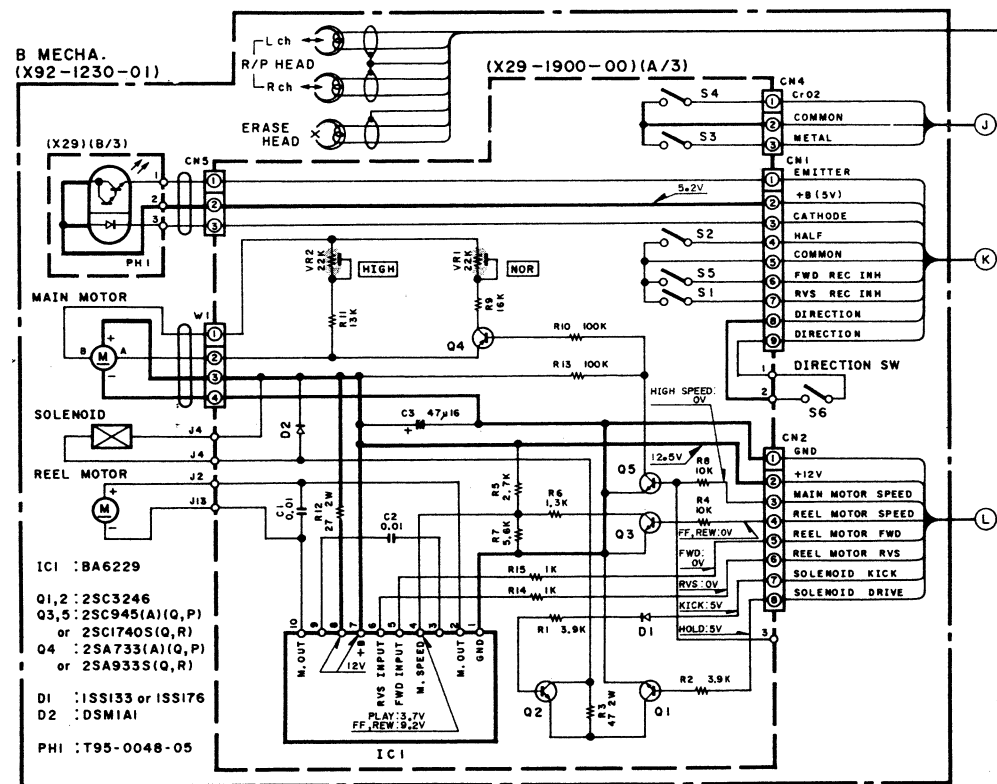
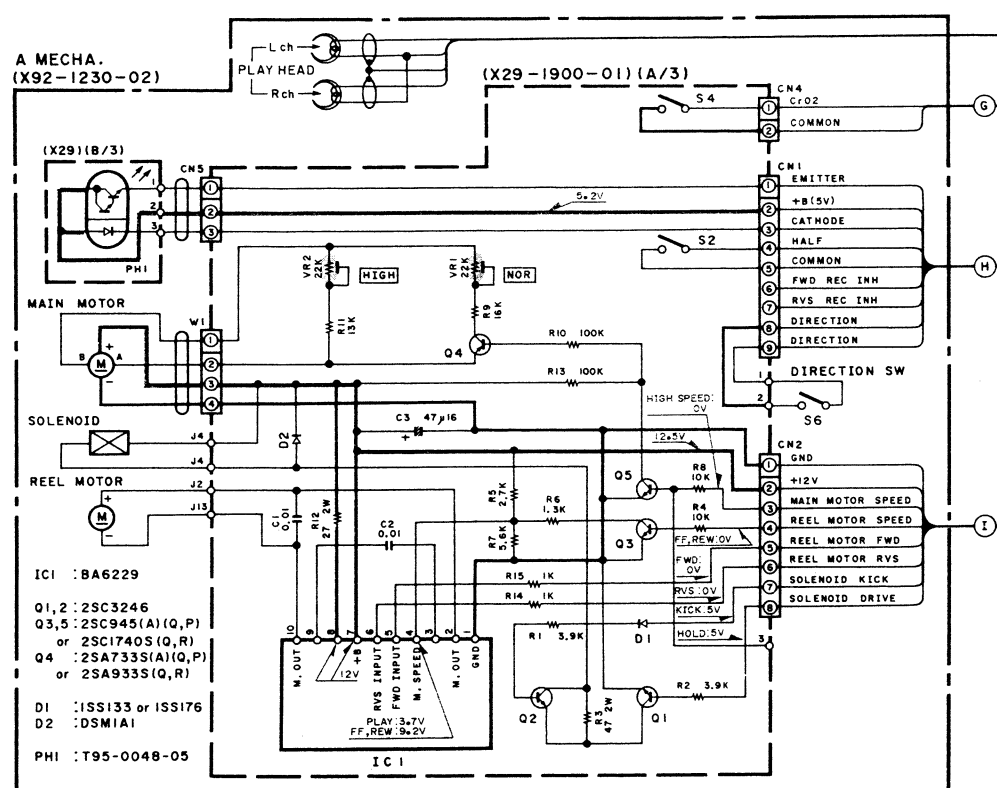
M51951ASL



BA6229

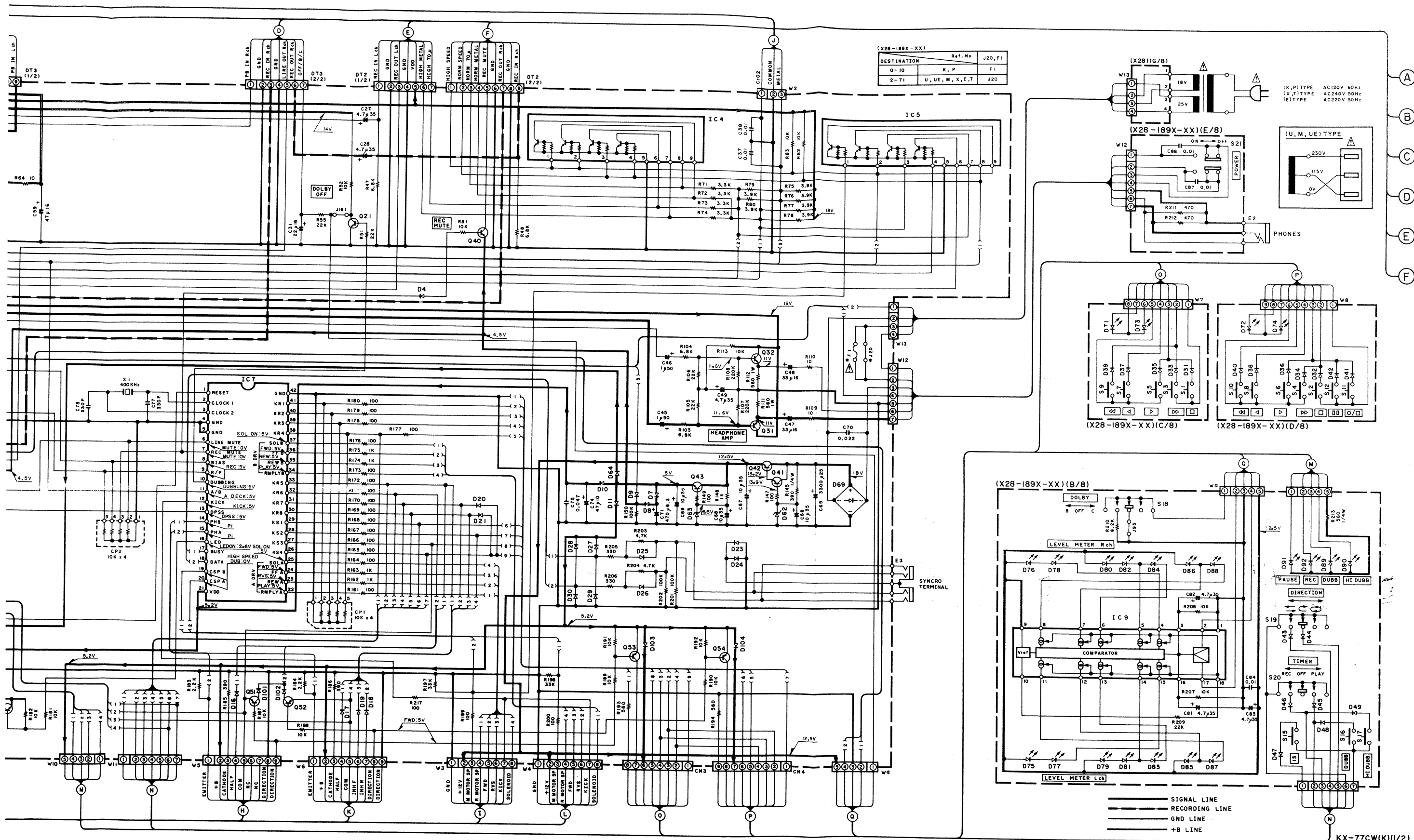


AN6888



• DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.

• Les tensions c.c. à haute impédance de lecture. Les valeurs peuvent varier légèrement en fonction des instruments ou/et des unités. Les tensions c.c. du circuit de biais sont mesurées en mode enregistrement.



high impedance  
mode. Values  
between individual  
voltages are as

- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance, une cassette étant insérée en mode de lecture. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels. Les tensions c.c. du circuit de polarité doivent être mesurées, l'appareil étant en mode d'enregistrement.

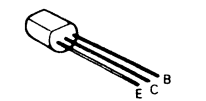
- Die angegebenen Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergabe mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig. Die angegebenen Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed appts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

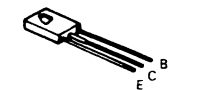
**NOTE:** Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice. DOLBY and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation. Noise reduction circuit made under license from Dolby Laboratories Licensing Corporation.

**KX-77CW**  
**KENWOOD**

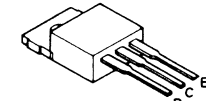
34025



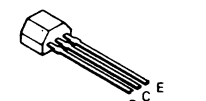
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2SC1845  
2SC2320  
2SC2878  
2SC3246  
2SC945(A)  
2SD863



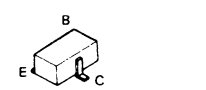
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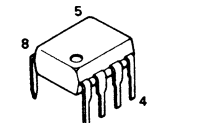
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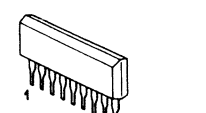
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2SC1740S



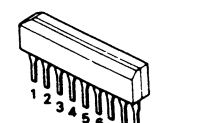
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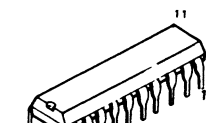
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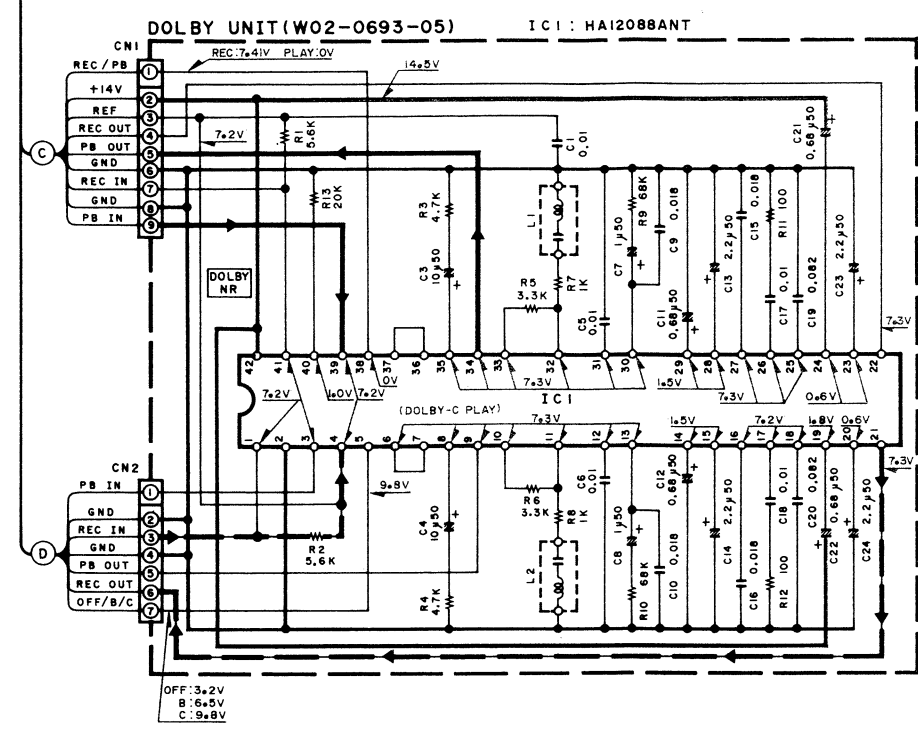
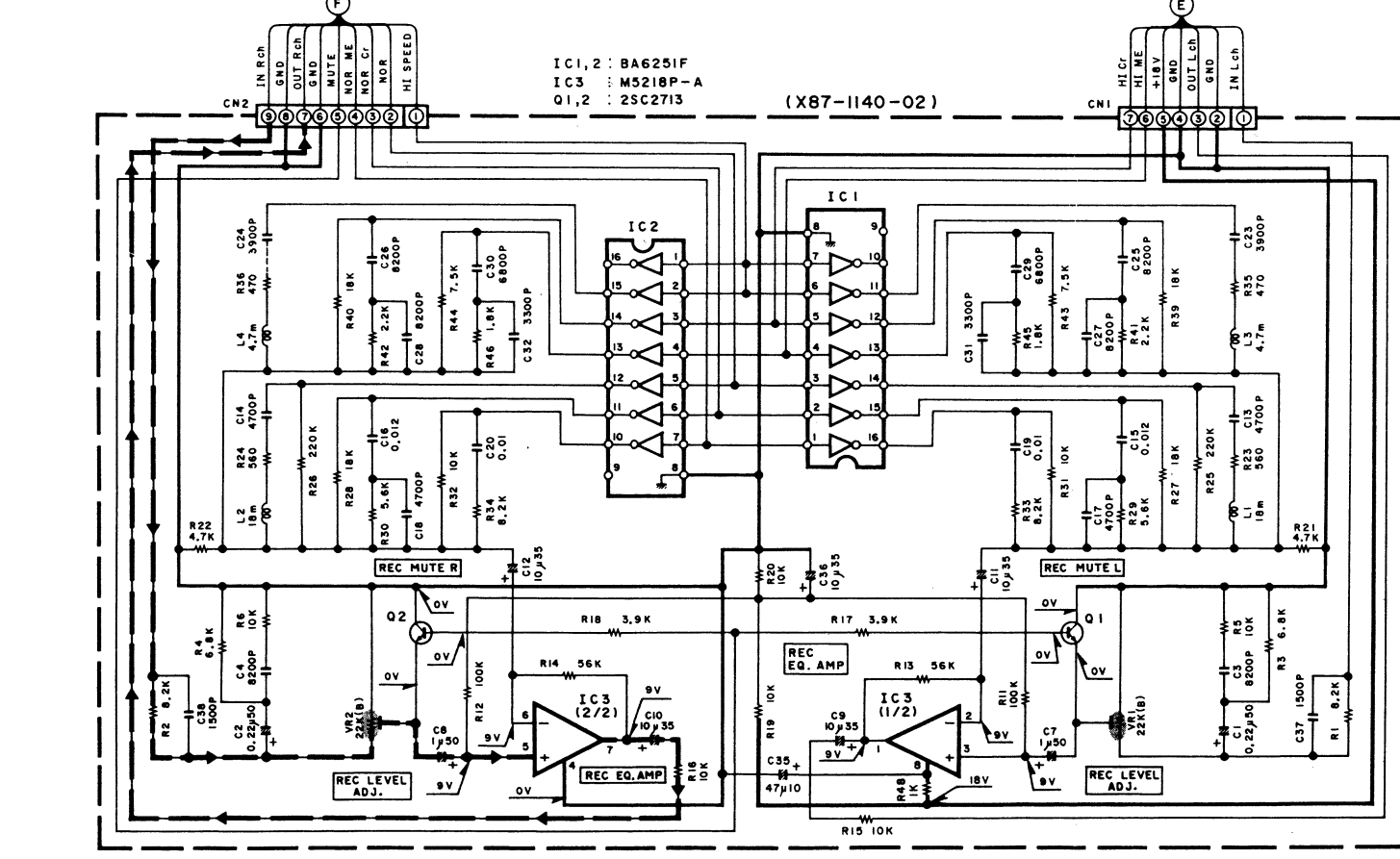
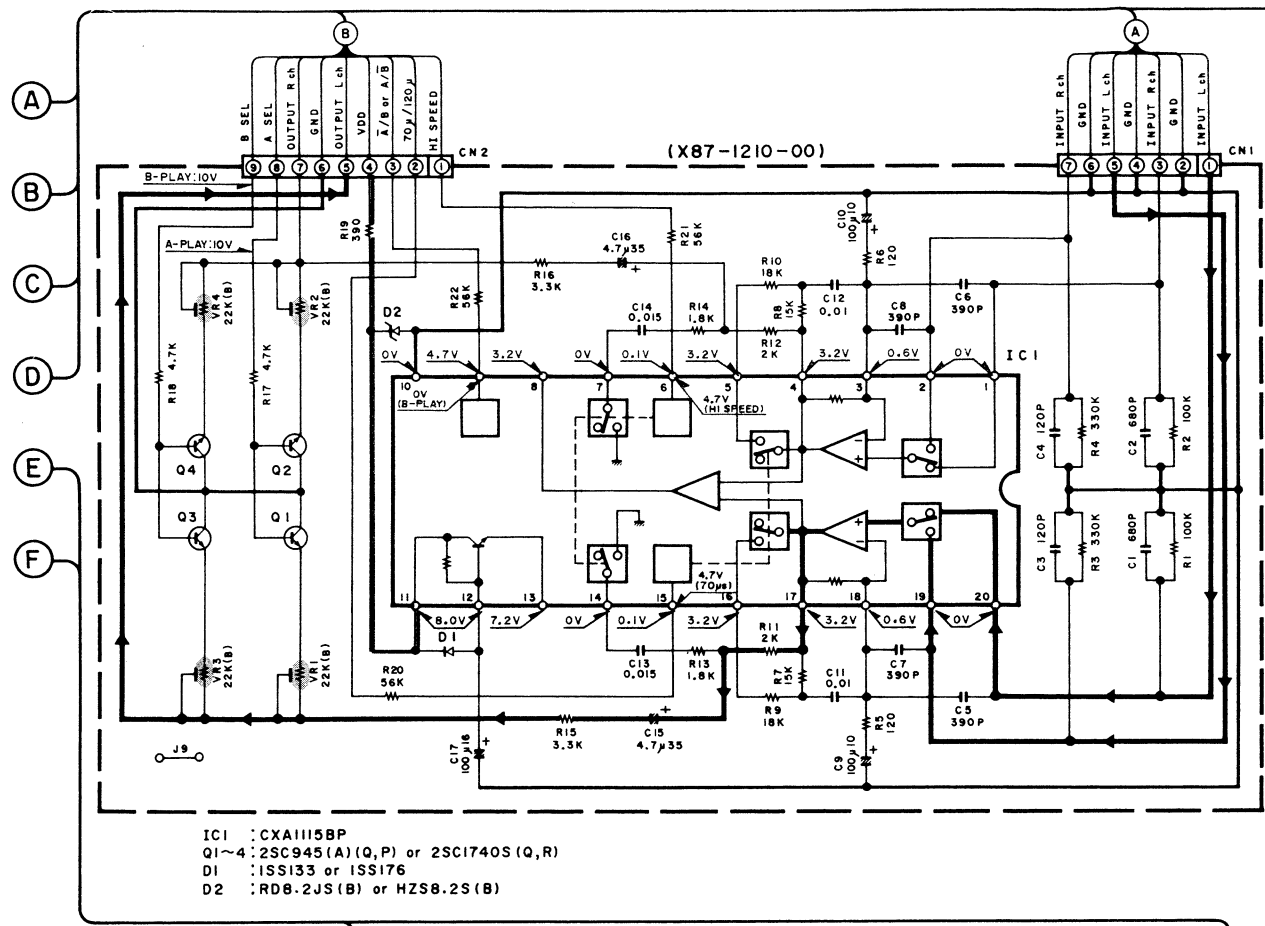
UPC1330HA



TD62554S



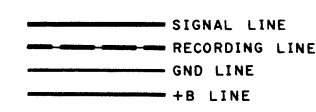
CXA1115BP



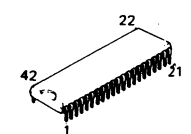
- DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.
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- Die angegebenen Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergabe mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig. Die angegebenen Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.

**CAUTION:** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).  $\Delta$  indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed appts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

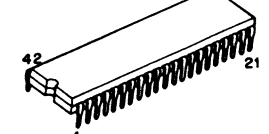
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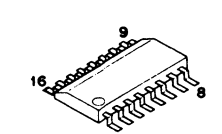
KX-77CW(K)(2/2)



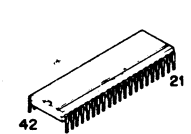
M5218P-A



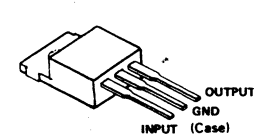
UPD7538AC-054



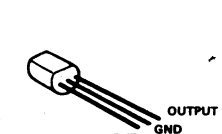
BA6251F



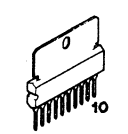
HA12088ANT



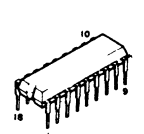
UPC7818HF



M51951ASL



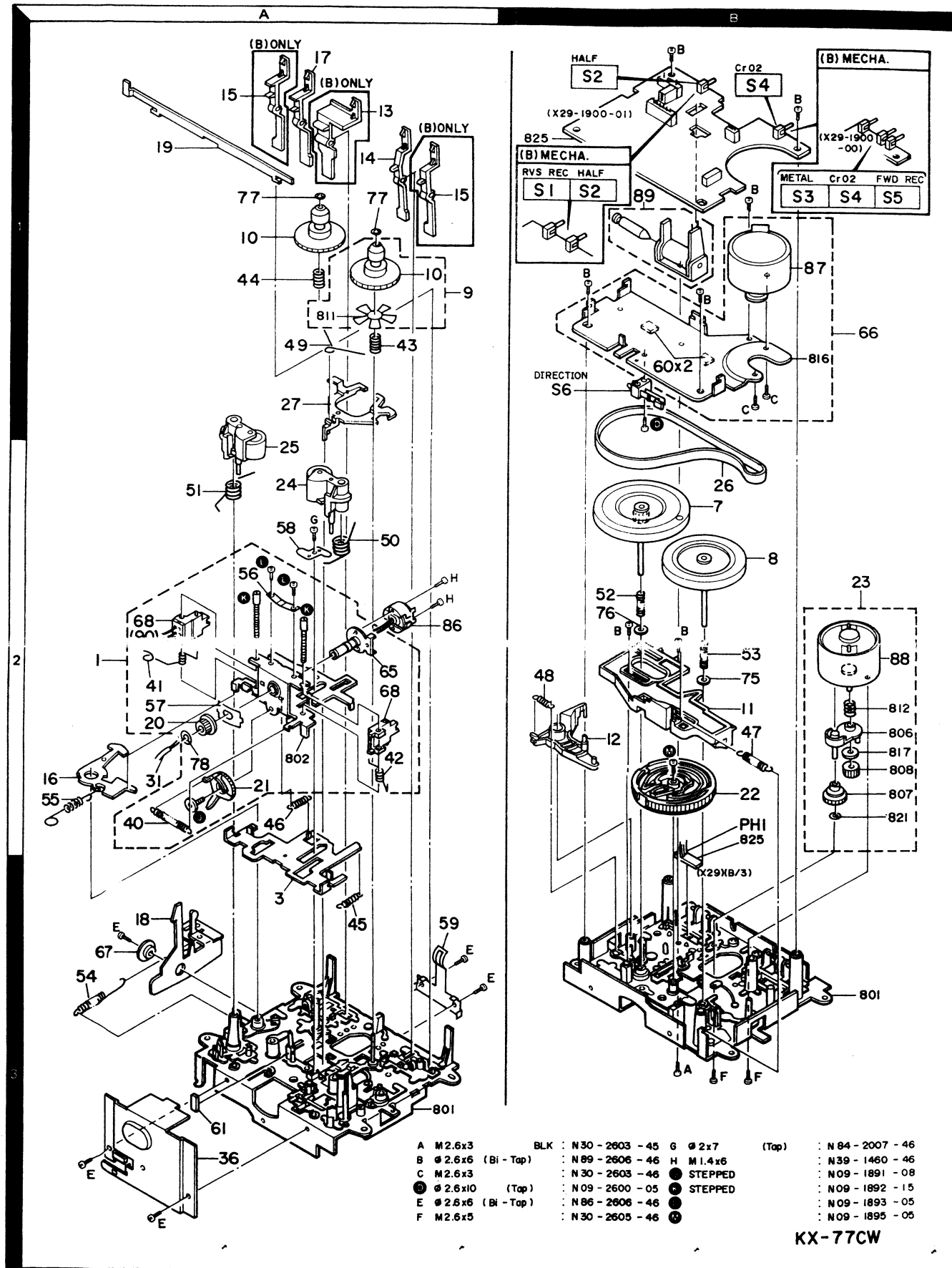
BA6229



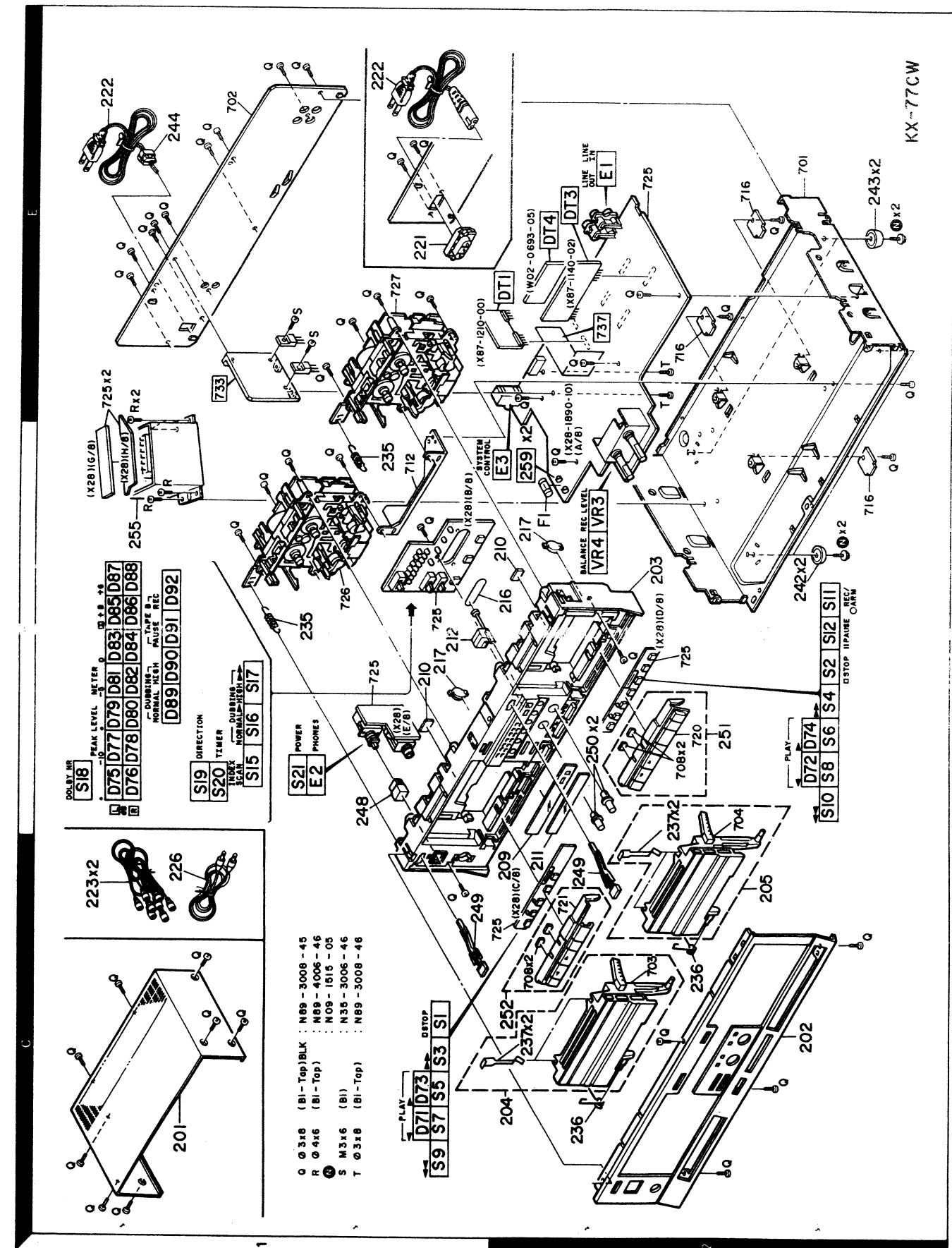
AN6888



## EXPLODED VIEW (MECHANISM)

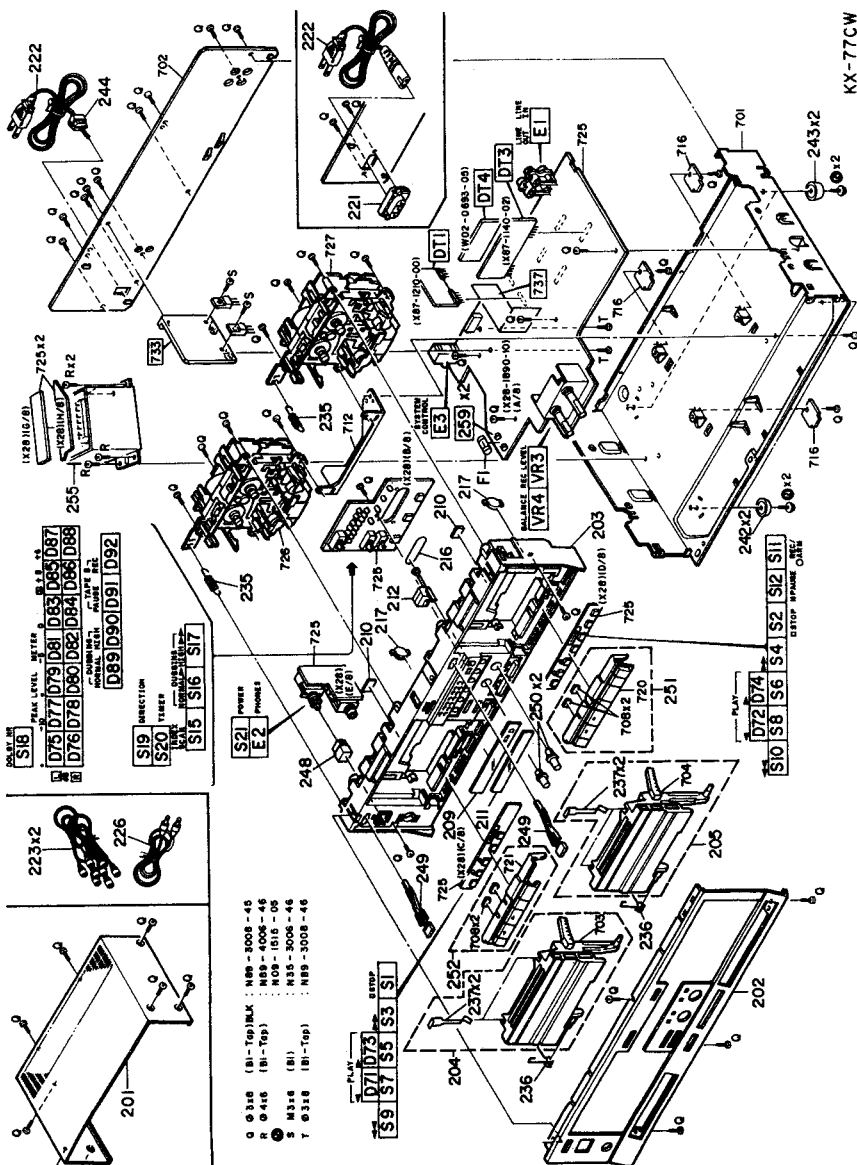


## EXPLODED VIEW (UNIT)





# EXPLODED VIEW (UNIT)



Parts with the exploded numbers larger than 700 are not supplied.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Remarks 備考
KX-77CW						
201	1C	*	A01-1637-01	METALLIC CABINET		
202	2C	*	A20-5451-02	PANEL		
203	2D	*	A22-0953-01	SUB PANEL		
204	2C	*	A53-1000-03	CASSETTE HOLDER ASSY(A)		
205	2C	*	A53-0999-03	CASSETTE HOLDER ASSY(B)		
209	2C		B03-2400-04	DRESSING PLATE (FRONT)		
210	1D, 2D		B07-1720-04	ESCUTCHEON		
211	2C		B11-0186-04	SMOKED FILTER		
212	1D		B35-0039-05	TAPE COUNTER		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-8960-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B50-8961-00	INSTRUCTION MANUAL(FRENCH)	PMXE	
-		*	B50-8962-00	INSTRUCTION MANUAL(SPANISH)	M	
-		*	B50-8963-00	INSTRUCTION MANUAL(ARABIC)	M	
-		*	B50-8964-00	INSTRUCTION MANUAL(G.D.I)	E	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET 220-240)	UUE	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
216	2D		D16-0179-04	BELT		
217	1D, 2D		D39-0176-05	DAMPER		
221	1E		E03-0102-25	AC INLET	UUEM	
222	1E		E30-0459-05	AC POWER CORD	E	
222	1E		E30-0780-05	AC POWER CORD	KP	
222	1E		E30-1305-15	AC POWER CORD (INLET)	UUEM	
222	1E		E30-1341-05	AC POWER CORD	X	
223	1C		E30-0505-05	AUDIO CORD	KPUUEM	
226	1C		E30-1392-05	CORD WITH PLUG	X	
226	1C		E30-1392-05	CORD WITH PLUG		
F1	1E		F06-3023-05	FUSE (UL) (250V 3A)	KP	
235	1D		G01-2209-04	EXTENSION SPRING(EJECT)		
236	2C		G01-2210-04	TORSION COIL SPRING(CASET HOLD)		
237	2C, 2D		G02-0394-14	FLAT SPRING (CASET HOLDER)		
-		*	H01-7754-04	ITEM CARTON CASE		
-		*	H10-3547-02	POLYSTYRENE FOAMED FIXTURE(L)		
-		*	H10-3548-02	POLYSTYRENE FOAMED FIXTURE(R)		
-		*	H20-0554-04	PROTECTION COVER	M	
-		*	H25-0232-04	PROTECTION BAG (235X350X0.03)		
-		*	H25-0330-04	PROTECTION BAG	KPUUEX	
-		*	H25-0330-04	PROTECTION BAG	E	
242	2D		J02-0161-04	FOOT(FRONT)		
243	2E		J02-0170-04	FOOT(REAR)		
244	1E		J42-0083-05	POWER CORD BUSHING	KPXE	
-			J61-0307-05	WIRE BAND		
248	1D		K29-2001-04	KN08 ASSY(POWER)		
249	1C, 2C		K29-2539-04	KN08 (EJECT)		

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

△ indicates safety critical components.



## PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
IC8 IC9 IC10 Q1 -8 Q11			TD62554S AN6888 M51951ASL 2SC945(A)(Q,P) 2SD863(E,F)	IC(4CH TRANSISTOR ARRAY) IC(SPT LED LEVEL METER DR X2) IC(SYSTEM RESET) TRANSISTOR TRANSISTOR		
Q12 -14 Q21 Q23 ,24 Q25 Q28			2SC2320(E,F) 2SC945(A)(Q,P) 2SC945(A)(Q,P) 2SD882 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q29 ,30 Q31 ,32 Q35 -37 Q38 -40 Q41			2SC2878(B) 2SC945(A)(Q,P) 2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SC1845(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q42 Q43 Q44 ,45 Q51 -54			2SD1266(Q,P) 2SD882 2SC945(A)(Q,P) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
DT4	2E		W02-0693-05	ELECTRIC CIRCUIT MODULE		
<b>CONTROL CIRCUIT UNIT (X29-1900-01: (A) -00: (B))</b>						
C1 ,2 C3 C4			CK45FF1H103Z CE04KW1C470M CF92FV1H104J	CERAMIC 0.010UF Z ELECTRO 47UF 16WV MF 0.10UF J		
CN5			E10-0308-05	FLAT CABLE CONNECTOR		
R3 R12 VR1 ,2			RS14KB3D470J RS14KB3D270J R12-3144-05	FL-PR08F RS 47 J 2W FL-PR08F RS 27 J 2W TRIMMING P8T. (22K)HIGH/LOW		
S1 -5 S2 S4	1B 1B 1B	*	S40-1107-05 S40-1107-05 S40-1107-05	PUSH SWITCH (REC,METAL) PUSH SWITCH (HALF) PUSH SWITCH (CR02)	B A A	
PH1		*	T95-0048-05	OPTO ISOLATOR		
D1 D1 D2 IC1 Q1 ,2			1SS133 1SS176 DSM1A1 BA6229 2SC3246	DIODE DIODE DIODE IC(MOTOR DRIVER) TRANSISTOR		
Q3 Q3 Q4 Q4 Q5			2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA933S(Q,R) 2SC1740S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q5			2SC945(A)(Q,P)	TRANSISTOR		
<b>RECORD/PLAYBACK UNIT (X87-1140-02)</b>						
C1 ,2 C3 ,4 C7 ,8 C9 -12 C13 ,14			CE04KW1HR22M CF92FV1H822J CE04KW1H010M CE04KW1V100M CF92FV1H472J	ELECTRO 0.22UF 50WV MF 8200PF J ELECTRO 1.0UF 50WV ELECTRO 10UF 35WV MF 4700PF J		
C15 ,16 C17 ,18			CF92FV1H123J CF92FV1H472J	MF 0.012UF J MF 4700PF J		

E: Scandinavia & Europe K: USA P: Canada  
 U: PX(Far East, Hawaii) T: England M: Other Areas  
 UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

## PARTS LIST

\* New Parts

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Ref. No. 参照番号	Address 位置	New Parts	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C19 ,20 C23 ,24 C25 -28 C29 ,30 C31 ,32			CF92FV1H103J CF92FV1H392J CF92FV1H822J CF92FV1H682J CF92FV1H332J	MF 0.010UF J MF 3900PF J MF 8200PF J MF 6800PF J MF 3300PF J		
C35 C36 C37 ,38			CE04KW1E470M CE04KW1V100M CF92FV1H152J	ELECTRO 47UF 25WV ELECTRO 10UF 35WV MF 1500PF J		
L1 ,2 L3 ,4		*	L40-1835-29 L40-4725-29	SMALL FIXED INDUCTOR(18MH,G) SMALL FIXED INDUCTOR(4.7MH,J)		
J1 -6 R1 ,2 R3 ,4 R5 ,6 R11 ,12			R92-0350-05 RD41FB2B822J RD41FB2B682J RD41FB2B103J RD41FB2B104J	JUMPER WIRE (RESISTOR TYPE) CYLND CHIP R 8.2K J 1/BW CYLND CHIP R 6.8K J 1/BW CYLND CHIP R 10K J 1/BW CYLND CHIP R 100K J 1/BW		
R13 ,14 R15 ,16 R17 ,18 R19 ,20 R21 ,22		*	RD41FB2B563J RD41FB2B103J RD41FB2B392J RD41FB2B103J RD41FB2B472J	CYLND CHIP R 56K J 1/BW CYLND CHIP R 10K J 1/BW CYLND CHIP R 3.9K J 1/BW CYLND CHIP R 10K J 1/BW CYLND CHIP R 4.7K J 1/BW		
R23 ,24 R25 ,26 R27 ,28 R29 ,30 R31 ,32		*	RD41FB2B561J RD41FB2B224J RD41FB2B183J RD41FB2B562J RD41FB2B103J	CYLND CHIP R 560 J 1/BW CYLND CHIP R 220K J 1/BW CYLND CHIP R 18K J 1/BW CYLND CHIP R 5.6K J 1/BW CYLND CHIP R 10K J 1/BW		
R33 ,34 R35 ,36 R39 ,40 R41 ,42 R43 ,44		*	RD41FB2B822J RD41FB2B471J RD41FB2B183J RD41FB2B222J RD41FB2B752J	CYLND CHIP R 8.2K J 1/BW CYLND CHIP R 470 J 1/BW CYLND CHIP R 18K J 1/BW CYLND CHIP R 2.2K J 1/BW CYLND CHIP R 7.5K J 1/BW		
R45 ,46 R48 VR1 ,2			RD41FB2B182J RD41FB2B102J R12-3101-05	CYLND CHIP R 1.8K J 1/BW CYLND CHIP R 1.0K J 1/BW TRIMMING P8T. (22K) REC LEVEL		
IC1 ,2 IC3 Q1 ,2			BA6251F M5218P-A 2SC2713	IC(7CH TRANSISTOR ARRAY) IC(8P AMP X2) TRANSISTOR		
<b>PLAYBACK AMPLIFIER UNIT (X87-1210-00)</b>						
C1 ,2 C3 ,4 C5 -8 C9 ,10 C11 ,12			CK45FB1H681K CK45FSL1H121J CK45FB1H391K CE04KW1A101M CF92FV1H103J	CERAMIC 680PF K CERAMIC 120PF J CERAMIC 390PF K ELECTRO 100UF 10WV MF 0.010UF J		
C13 ,14 C15 ,16 C17			CF92FV1H153J CE04KW1V4R7M CE04KW1C101M	MF 0.015UF J ELECTRO 4.7UF 35WV ELECTRO 100UF 16WV		
VR1 -4			R12-3101-05	TRIMMING P8T. (22K) PB LEVEL		
D1 D1 D2 D2 IC1		*	1SS133 1SS176 HZ58.25(B) RDB.2JS(B) CXA1115BP	DIODE DIODE ZENER DIODE ZENER DIODE IC(PB PRE AMP)		
Q1 -4			2SC1740S(Q,R)	TRANSISTOR		

E: Scandinavia & Europe K: USA P: Canada  
 U: PX(Far East, Hawaii) T: England M: Other Areas  
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△ indicates safety critical components.

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

## PARTS LIST

Ref. No. 参照番号	Address 位置	New 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
01 -4			2SC945(A)(Q,P)	TRANSISTOR		
<b>MECHANISM ASS'Y (X92-1230-02: (A)-01: (B))</b>						
1	2A	*	A10-1122-15	CHASSIS ASSY		
3	2A	*	A11-0254-13	SUB CHASSIS		
7	2B	*	D01-0094-05	FLYWHEEL ASSY (R,GEAR)		
8	2B	*	D01-0095-05	FLYWHEEL ASSY (L)		
9	1A	*	D03-0264-14	REEL DISK ASSY		
10	1A	*	D03-0265-14	REEL DISK		
11	2B	*	D10-2036-02	SLIDER		
12	2B	*	D10-2037-13	ARM (FD)		
13	1A	*	D10-2040-03	LEVER (METAL)		B
14	1A	*	D10-2041-23	LEVER (HALF)		
15	1A	*	D10-2042-13	LEVER (REC)		B
16	2A	*	D10-2044-14	ARM (LOCK)		
17	1A	*	D10-2045-03	LEVER (CR02)		
18	3A	*	D10-2077-04	LEVER (EJECT)		
19	1A	*	D10-2078-04	LEVER (SW RELEASE)		
20	2A	*	D13-0652-08	GEAR (HEAD)		
21	2A	*	D13-0653-08	GEAR (DIRECTION)		
22	2B	*	D13-0654-22	GEAR (FD)		
23	2D	*	D14-0262-05	IDLER ASSY		
24	2A	*	D14-0263-15	PINCH ROLLER ASSY(R)		
25	2A	*	D14-0264-15	PINCH ROLLER ASSY(L)		
26	2B	*	D16-0174-04	BELT		
27	1A	*	D30-0020-13	BRAKE		
31	2A	*	E31-4218-05	WIRING HARNESS (HEAD)		B
31	2A	*	E31-4219-05	WIRING HARNESS (HEAD)		A
36	3A	*	F10-0643-04	SHIELDING PLATE		
40	3A	*	G01-2126-08	EXTENSION SPRING(DIRECTION)		
41	2A	*	G01-2127-08	TORSION COIL SPRING(GUIDE,L)		
42	2A	*	G01-2128-08	TORSION COIL SPRING(GUIDE,R)		
43	1A	*	G01-2130-14	COMPRESSION SPRING (B.T,R)		
44	1A	*	G01-2131-14	COMPRESSION SPRING (B.T,L,RVS)		
45	3A	*	G01-2133-14	EXTENSION SPRING (RETURN)		
46	2A	*	G01-2134-24	EXTENSION SPRING		
47	2B	*	G01-2135-04	EXTENSION SPRING (SLIDER)		
48	2B	*	G01-2136-14	EXTENSION SPRING (FD)		
49	1A	*	G01-2137-04	TORSION COIL SPRING(BRAKE)		
50	2A	*	G01-2140-24	TORSION COIL SPRING(P/R,R)		
51	2A	*	G01-2141-24	TORSION COIL SPRING(P/R,L)		
52	2B	*	G01-2143-14	COMPRESSION SPRING(R,WITH GEAR)		
53	2B	*	G01-2144-14	COMPRESSION SPRING (L)		
54	3A	*	G01-2182-04	EXTENSION SPRING (EJECT)		
55	2A	*	G01-2233-04	EXTENSION SPRING		
56	2A	*	G02-0455-08	FLAT SPRING (AZIMUTH)		
57	2A	*	G02-0456-08	FLAT SPRING (HEAD)		
58	2A	*	G02-0457-04	FLAT SPRING		
59	3A	*	G02-0458-04	FLAT SPRING (HALF)		
60	1B		G16-0108-14	SHEET (BLK)		
65	2A	*	J21-5126-08	MOUNTING HARDWARE ASSY(HEAD)		
66	1B	*	J21-5128-13	MOUNTING HARDWARE ASSY(RVS)		

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67	3A	*	J31-0817-04	COLLAR (EJECT)		
68	2A		J90-0190-05	GUIDE		
75	2B	*	J61-0019-05	WIRE BAND		A
76	2B	*	N19-1175-04	FLAT WASHER (FLYWHEEL R)		
77	1A	*	N19-0367-14	FLAT WASHER (FLYWHEEL L)		
78	2A	*	N19-1105-04	FLAT WASHER (REEL)		
J	2A	*	N19-1107-08	FLAT WASHER (Ø3.7)		
K	2A	*	N09-1891-08	STEPPED SCREW(DIRECTION GEAR)		
	2A	*	N09-1892-15	STEPPED SCREW(TAPE GUIDE)		
L	2A		N09-1893-05	MACHINE SCREW(AZIMUTH)		
M	2B	*	N09-1895-05	TAPTITE SCREW		
D	2B	*	N09-2600-05	TAPTITE SCREW (φ2.6 × 10)		
S6	1B	*	S46-1102-15	LEAF SWITCH (DIRECTION)		
86	2A	*	T31-0046-05	PLAYBACK HEAD		A
86	2A	*	T39-0005-05	RECORD/PLAYBACK ERASE HEAD		B
87	1B		T42-0451-04	MOTOR ASSY		
88	2B		T42-0453-05	DC MOTOR (REEL)		
89	1B	*	T94-0204-05	SOLENOID COIL		
<b>ELECTRIC CIRCUIT MODULE (W02-0693-05)</b>						
IC1			HA1208BANT	IC(DOLBY B/C NOISE REDUCTION)		

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## SPECIFICATIONS

Type.....	Stereo Double Reverse Full Logic Cassette Deck with Dolby B. C NR system
Track System.....	4-track, 2-channel stereo/mono, recording/playback
Recording System.....	AC bias system (Bias frequency: 105 kHz)
Erasing System.....	AC system
Tape Speed.....	4.76 cm/sec (1-7/8 ips)
Heads.....	Hard permalloy playback/record head x 1 Hard permalloy playback head x 1 Double gap ferrite erasing head x 1
Motor.....	Electronically-controlled DC motor x 2
Fast Winding Time.....	Approx. 110 seconds with C-60 tape
Frequency Response:	
Normal Tape.....	20 Hz to 15,000 Hz (30 Hz to 14,000 Hz, $\pm 3$ dB)
CrO <sub>2</sub> Tape.....	20 Hz to 16,000 Hz (30 Hz to 15,000 Hz, $\pm 3$ dB)
Metal Tape.....	20 Hz to 16,000 Hz (30 Hz to 15,000 Hz, $\pm 3$ dB)
Signal-to Noise Ratio:	
Dolby C Type NR ON.....	72 dB (Normal tape)
Dolby B Type NR ON.....	65 dB (Normal tape)
Dolby NR OFF.....	57 dB (Normal tape)
Harmonic Distortion.....	Less than 0.6% (at 1 kHz, 0 dB with normal tape)
Wow and Flutter.....	0.08% (W.R.M.S.), $\pm 0.22\%$ (DIN)
Input sensitivity/Impedance:	
LINE x 2.....	77.5 mV/50 kohms
Output Level/Output Impedance:	
LINE x 2.....	270 mV/3.9 kohms
Headphones x 1.....	0.2 mW/8 ohms
Power Consumption.....	25 W
Dimensions.....	W: 420 mm (16-9/16") H: 119 mm (4-11/16") D: 266 mm (10-15/32")
Weight (Net).....	5.3 kg (11.7 lb)
Reference Tapes.....	Normal: KENWOOD ND-60 CrO <sub>2</sub> : KENWOOD CD-60 Metal: KENWOOD MD-60

### Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

### Note

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the U.S.A. (k) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

### Note

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Noise reduction circuit made under license from Dolby Laboratories Licensing Corporation.

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